

ESSENTIALS OF CHILD STUDY

G.W.A. LUCKEY

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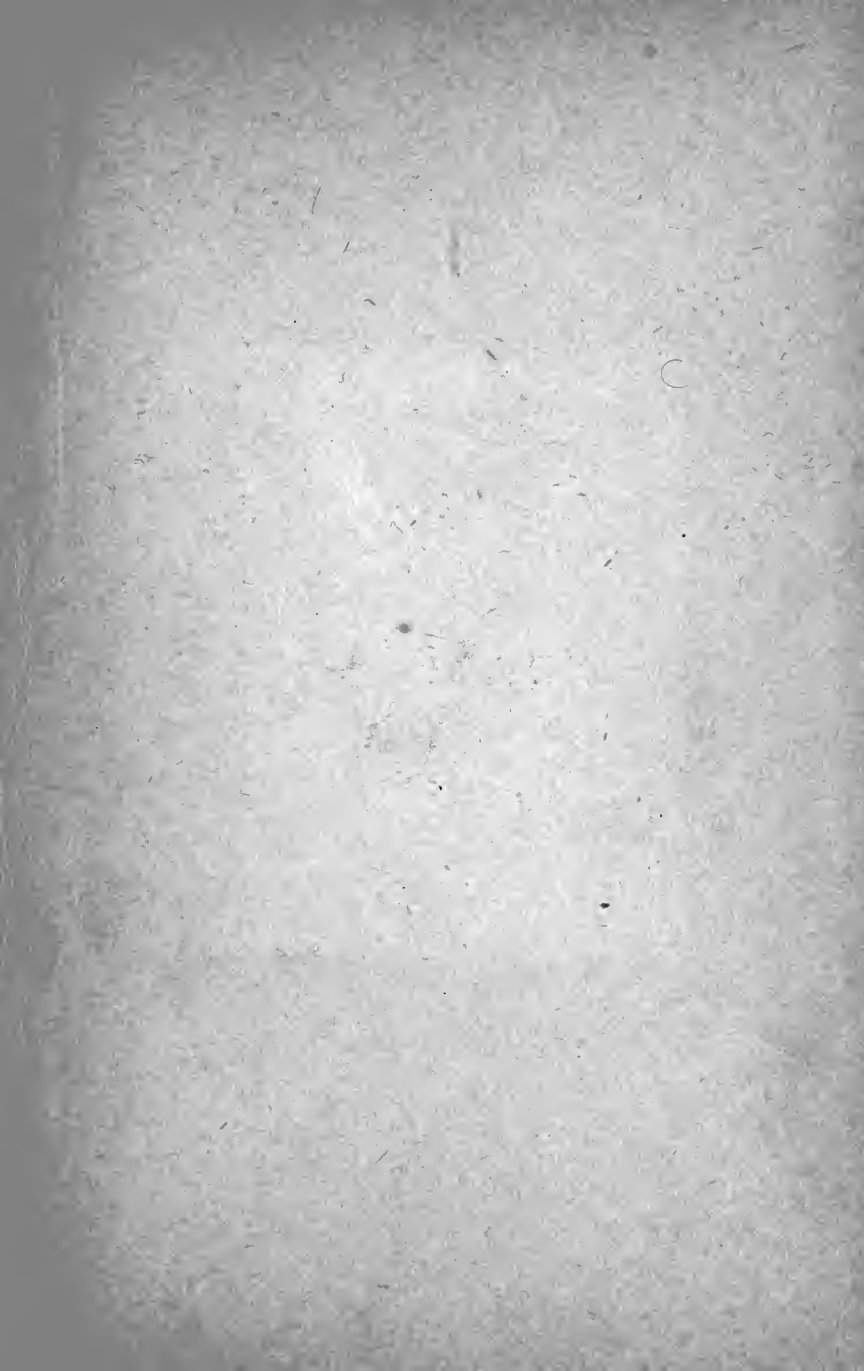


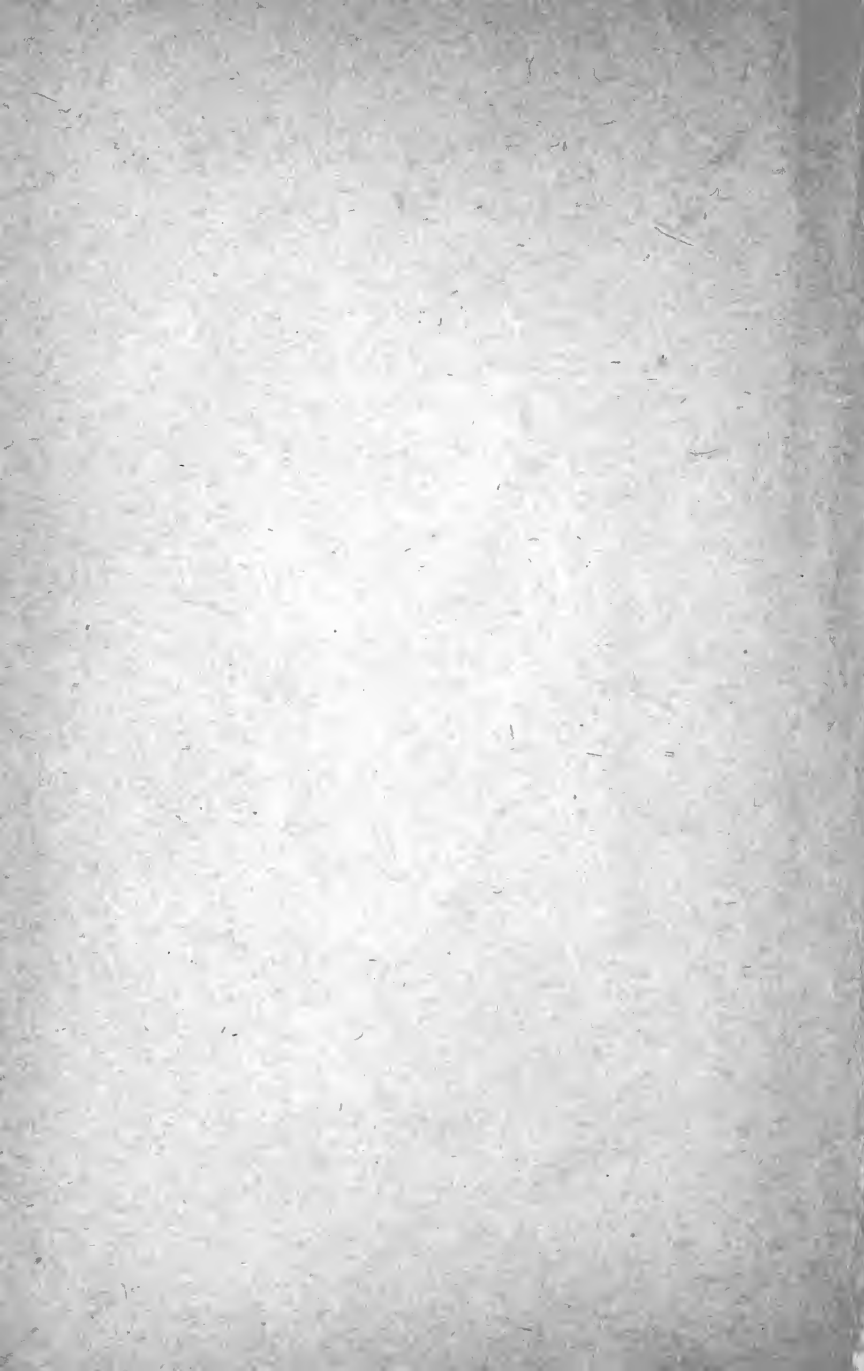
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THE ESSENTIALS OF CHILD STUDY

INCLUDING

CLASS OUTLINES, BRIEF DISCUSSIONS,
TOPICAL REFERENCES, AND A
COMPLETE BIBLIOGRAPHY

BY

GEORGE WASHINGTON ANDREW LUCKEY, PH. D.

*Dean of the Graduate School of Education
University of Nebraska*



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no. 1.

To My Children

*Whose Aspirations and Lives Have Furnished
Much of the Material Herein Contained*

PREFACE

THE Essentials of Child Study has grown out of twenty-one years' experience in teaching the subject in the University of Nebraska. It represents the nucleus of a three hour college course for one semester of eighteen weeks, consisting of fifty-two class periods of fifty minutes each. It had its beginning in a series of class outlines prepared primarily for college students having had the equivalent of six hours' credit in biology and as many more hours' credit in psychology as a foundation to the study. To these outlines have been added from time to time new material showing the results of experimentation, calling attention to important child study literature, and giving in connection with each topic such information as will make clear the essentials in a course of child study.

The Essentials of Child Study is used as a text in the beginning course of Child Study in the University of Nebraska and covers the nature, growth and development of the child from birth to adolescence—in a few instances through adolescence. The thread of that running thru the whole is the changing nature and intelligent nurture of the child. It aims to give in a condensed form the essential facts that ought to be known by every student of childhood, teacher, and parent. It is published for the benefit of students who make such constant use of it, and to supply the demand for the former Child Study Outlines from which it grew. Other institutions have used the Outlines of

Child Study as a text and it is thot that the present Essentials of Child Study will be found even more serviceable for such use, and of interest and value to both parent and teacher alike.

The Bibliography has been prepared with special care. It is confined almost wholly to references in English (especially those covering conditions of child life in the United States) and while sufficiently complete does not aim to be exhaustive.

The Essentials of Child Study is published in the belief that it will find a ready welcome in many a student's library, and be of special service to teachers and parents who desire to become better acquainted with the nature and needs of children.

G. W. A. LUCKEY.

CONTENTS

	Page
General References	7
CHAPTER 1. Beginning, Nature and Scope of Child Study.....	15
CHAPTER 2. The Practical Importance of Child Study.....	21
CHAPTER 3. <i>The Child at Birth and Its Care:</i> (a) Physical Condition; (b) Reflex Functions; (c) Mental Conditions; (d) Care of Child..	26
CHAPTER 4. The Physical Child, Including Health, Growth, Food, Exercise, Rest, Sanitation.....	30
CHAPTER 5. The Nervous System: (a) Brain Growth; (b) Office of Nervous System	37
CHAPTER 6. <i>The Sense of Sight:</i> (1) Sight Observations; (2) Physical Movements and Adjustments of the Eyes; Observations Showing Early Adjustment of the Eyes to Light.....	41
CHAPTER 7. <i>The Sense of Sight—Continued:</i> (3) Beginning of Conscious Perception, Observations Showing the Beginning to Fixate Objects, Early Eye Movements; (4) Perspective.....	45
CHAPTER 8. <i>The Sense of Sight—Continued:</i> (5) Color Discrimination, Observations on Color Discrimination.....	49
CHAPTER 9. <i>The Sense of Sight—Concluded:</i> (6) Defective Vision..	54
CHAPTER 10. <i>The Sense of Hearing:</i> Observations Indicating Sensitiveness to Sound, Beginning of Localization thru Sound, Defects in Hearing	58
CHAPTER 11. <i>The Sense of Touch:</i> Observations on Touch, Associating Visual and Tactile Sensations.....	64
CHAPTER 12. <i>Taste and Smell:</i> Early Indications of Taste, Observations on Smell.....	69
CHAPTER 13. <i>Feeling:</i> (1) Organic Sensation; (2) Emotion; (3) Fears, Signs of Fear from Unusual Sounds, Quotations Indicating the Child's Fear of Animals, Strange Objects and Persons, Fear of Falling, Fear of the Dark.....	75

	Page
CHAPTER 14. <i>A Supplement to Feeling: An Introspective Study of Fears, A Plan for Gathering Data on Children's Fears, A Study of Fear in Infants, Facts Obtained from a Study of Fears</i>	87
CHAPTER 15. <i>Feeling—Continued: (4) Surprise and Astonishment, Observations Indicating the Beginning of Surprise and Astonishment; (5) Curiosity, Indications of Curiosity; (6) Anger, Early Indications of Anger, Questions for the Introspective Study of Anger, Summary of a Study of Anger, The Best Treatment of Children Subject to Fits of Passion</i>	96
CHAPTER 16. <i>Feeling—Concluded: (7) Aesthetic Feelings; (8) Affection; (9) Sympathy, Earliest Indications of Pleasure, Earliest Indications of Pleasure—Music, Earliest Indications of Pleasure—Affection, Indications of Sympathy, Indications of Jealousy, An Outline for Study, Summary of a Study on Affection of 448 University Students</i>	109
CHAPTERS 17-18. <i>Knowing: (1) Intellect; (2) Perception; (3) Memory, The Beginning of Intelligence, Signs of Intelligence—Association, Observations on Memory, Earliest Memories; (4) Imagination, Records on Imagination</i>	124
CHAPTER 19. <i>Knowing—Concluded: Conception, Judgment, Reasoning, Types of the Child's Reasoning</i>	145
CHAPTER 20. <i>Ideas of Self: The Use of Pronouns</i>	149
CHAPTERS 21-23. <i>Willing, The Development of the Will: (1) Impulsive Movements; (2) Reflex Movements; (3) Instinctive Movements,—Seizing, Biting, Walking; (4) Ideational Movements,—Imitative, Expressive, Deliberative; Records of the Beginning of Imitation, Early Indication of Will</i>	152
CHAPTERS 24-25. <i>Children's Drawings: Plans for Obtaining Data for Study</i>	165
CHAPTERS 26-27. <i>The Beginning of Language: (1) The Babbling or Mamma Period; (2) The Beginning of Sound Imitation and Gesture Language; (3) The Acquisition and Understanding of Words; (4) The Stage of Sentence Building</i>	170
CHAPTER 28. <i>Crying and Laughing</i>	176
CHAPTER 29. <i>Children's Interests: Order of Interest in Literature</i> ..	179
CHAPTER 30. <i>Methods of Child Study</i>	185
CHAPTER 31. <i>Fatigue</i>	191
CHAPTER 32. <i>Moral and Religious Training</i>	196
CHAPTER 33. <i>The Music Sense of Children and Its Cultivation</i>	202
Index	213

GENERAL REFERENCES FOR CHILD STUDY

1. *Adler, Felix.* Moral Instruction of Children, pp. 270. D. Appleton, New York, 1892.
2. *Aldrich, Thomas B.* Story of a Bad Boy, pp. 261. Houghton Mifflin Co., Boston, 1897.
3. *Allen, Wm. H.* Civic and Health, pp. 411. Ginn & Co., Boston, 1909.
- †4. *Alport, Frank.* The Eye and Its Care, Philadelphia, 1896, pp. 174.
- *5. *Baldwin, J. M.* Mental Development of the Child and the Race, pp. 496. Macmillan, New York, 1906.
- *6. *Barnes, Earl.* Studies in Education, Vols. 1 and 2. Earl Barnes, Editor, Philadelphia, 1897-1902.
7. *Birney, Mrs. Theodore W.* Childhood, pp. 254. F. A. Stokes Co., New York, 1905.
- †8. *Burbank, Luther.* The Training of the Human Plant, pp. 99. Century, New York, 1907.
9. *Burnett, Frances Hodgson.* The One I Knew Best of All: A Memory of the Mind of a Child, pp. 325. Chas. Scribner's Sons, New York, 1893.
10. *Canton, William.* W. V., Her Book and Various Verses, pp. 150. E. P. Dutton, New York, 1912.
11. *Carus, Paul.* Our Children, pp. 207. Open Court Pub. Co., Chicago, 1906.
- †12. *Chamberlain, A. F.* The Child and Childhood in Folk-Thought, pp. 464. Macmillan, New York, 1896.
- †13. *Chamberlain, A. F.* The Child: A Study in the Evolution of Man, pp. 498. Chas. Scribner's Sons, New York, 1901.
14. *Chenery, Susan.* As the Twig is Bent. Houghton Mifflin Co., New York, 1901.
15. *Claparède, Ed.* Psychologie de l'Enfant et Pédagogie Expérimentale, trans. by Mary Louch and Henry Holman, pp. 332. Longmans, Green & Co., New York, 1911.

- *16. *Compayre, G.* The Intellectual and Moral Development of the Child (Part I), pp. 298.
- *17. *Compayre, G.* Development of the Child in Later Infancy (Part II), pp. 331. D. Appleton, New York, 1902-1909.
- †18. *Cooke, Joseph Brown, M. D.* The Baby Before and After Arrival, pp. 239. J. B. Lippincott Co., Philadelphia, 1916.
19. *Cradock Mrs. H. C.* The Training of Children from Cradle to School, pp. 91. G. Bell & Sons, London, 1909.
20. *Davison, Alvin.* The Human Body and Health. American Book Co., New York, 1908.
- †21. *Dawson, G. E.* The Child and His Religion, pp. 124. Univ. of Chicago Press, Chicago, 1909.
- *22. *Dearborn, George V. N.* Moto-Sensory Development, Observations on the First Three Years of a Child. Warwick & York, Inc., Baltimore, 1910.
- †23. *Drummond, W. B.* The Child, His Nature and Nurture, pp. 146. J. M. Dent & Co., London, 1907.
- *24. *Drummond, W. B.* An Introduction to Child Study, pp. 348. E. Arnold, London, 1907.
- †25. *DuBois, Patterson.* Beckonings of Little Hands, pp. 166. J. D. Wattles, Philadelphia, Pa., 1894.
- *26. *DuBois, Patterson.* The Point of Contact, pp. 88. J. D. Wattles, Philadelphia, Pa., 1907.
27. *Earle, Alice Morse.* Child Life in Colonial Days, pp. 418. Macmillan, New York, 1899.
28. *Earle, Alice Morse.* Home Life in Colonial Days, pp. 470. Macmillan, New York, 1898.
29. *Elwes, Hervey.* The Modern Child, pp. 246. T. N. Foulis, 15 Frederick St., Edinburgh and London, 1908.
- *30. *Fiske, John.* The Meaning of Infancy, pp. 42. Houghton Mifflin Co., New York, 1909.
- †31. *Groszmann, Maximilian P. E.* The Career of the Child, pp. 335. Richard E. Badger, Boston, 1911.
32. *Gurlitt, Ludwig.* Der Verkehr mit meinen Kindern, pp. 194. Concordia deutsche verlags-anstalt. H. Ehbock, Berlin, 1907.

- †33. *Guyer, Michael F.* Being Well Born, pp. 373. The Bobbs-Merrill Co., Indianapolis, 1916.
- †34. *Hall, G. Stanley.* Aspects of Child Life and Education, pp. 326. Edited by T. L. Smith, Boston, 1907.
- *35. *Hall G. Stanley* (Editor). Pedagogical Seminary. Vols. 1-25.
- †36. *Hall G. Stanley.* Youth: Its Education, Regimen and Hygiene, pp. 379. D. Appleton, New York, 1906.
37. *Harrison, Eliz.* A Study of Child Nature from the Kindergarten Standpoint, pp. 207. Chicago Kindergarten College, Chicago, 1895.
38. *Heath, H. Llewellyn.* The Infant, the Parent and the State; a Social Study and Review, pp. 191. P. S. King & Son, London, 1907.
- *39. *Hogan, Louise E.* A Study of a Child, pp. 219. Harper Bros., New York, 1898.
- †40. *Hogan, Louise E.* How to Feed Children, pp. 236. J. B. Lippincott Co., Philadelphia, 1899.
41. *Hogan, Mrs. John L.* Children's Diet in Home and School, pp. 176. Henry Coates & Co., Philadelphia.
- †42. *Holmes, Arthur.* The Conservation of the Child, pp. 345. J. B. Lippincott Co., Philadelphia, 1912.
43. *Holmes, Arthur.* Backward Children, pp. 247. The Bobbs-Merrill Co., Indianapolis, 1915.
44. *Howells, William Dean.* A Boy's Town. Harper Bros., New York.
45. *Hunt, Una.* Una Mary (The Inner Life of a Child), pp. 268. Chas. Scribner's Sons, New York, 1914.
46. *Judd, C. H.* Genetic Psychology for Teachers, pp. 329. D. Appleton, New York, 1903.
- †47. *Keating, John M.* Maternity; Infancy; Childhood. J. B. Lippincott Co., Philadelphia. Important to mothers and nurses entrusted with the early life of children.
48. *Keller, Helen.* Story of My Life, pp. 441. Doubleday, Page & Co., New York, 1903.
49. *Kelly, Myra.* Little Citizens: The Humors of School Life, pp. 352. McClure, Phillips & Co., New York, 1904-1912.
50. *Key, Ellen.* The Century of the Child, pp. 339. Putnam, New York, 1909.

- †51. *Kidd, Dudley*. *Savage Childhood, a Study of Kafir Children*, pp. 314. A. and C. Black, London, 1906.
- †52. *King, Irving*. *The Psychology of Child-Development*, pp. 265. Univ. of Chicago Press, Chicago, 1903.
- †53. *Kirkpatrick, E. A.* *Fundamentals of Child Study*, pp. 384. Macmillan, New York, 1908.
54. *Kratz, H. E.* *Studies and Observations in the School Room*, pp. 220. Educational Publishing Co., Boston, 1907.
55. *Kriege, Matilda H.* *The Child*. pp. 148. E. Steiger, New York, 1872.
- †56. *Krohn, W. O.* (Editor). *Child Study Monthly*, Vols. 1-6. 1895.
57. *Laughlin, Elmer Osborn*. *Johnnie: A Memory of Boyhood*. The Bobbs-Merrill Co., Indianapolis, 1903.
58. *Loti, Pierre* (Viaud). *Romance of a Child*, pp. 284. Rand, McNally, Chicago, 1891.
59. *McMillan, Margaret*. *Early Childhood*. C. W. Bardeen, Syracuse, New York, 1900.
- †60. *Major, David R.* *First Steps in Mental Growth*, pp. 360. Macmillan, New York, 1906.
61. *Malleson, Mrs. F.* *Notes on the Early Training of Children*, pp. 129. W. Swan Sonnenschein & Co., London, 1885.
62. *Mangold, Geo. B.* *Child Problems*, pp. 381. Macmillan, New York, 1910.
63. *Martin, George Madden*. *Emmy Lou: Her Book and Heart*. Doubleday, Page & Co., New York, 1902.
64. *Meyer, Mrs. Bertha*. *Aids to Family Government*, pp. 208. M. L. Holbrook & Co., New York, 1879.
65. *Meyer, Mrs. Bertha*. *The Child Mentally and Physically*. Fowler & Wells Co., New York.
66. *Meynell, Mrs. Alice C.* *The Children*, pp. 134. John Lane, New York, 1897.
67. *Michelet, Mme. A. M.* *A Story of My Childhood*, pp. 218. Little, Brown & Co., Boston, 1867.
68. *Miller, J. H.* (Editor). *Northwestern Monthly*.
69. *Monroe, Paul* (Editor). *Cyclopedia of Education: Topics, Child Study and Child Psychology*. 5 Vols. Macmillan, New York, 1911-13.

- *70. *Moore, Kathleen.* Mental Development of a Child, pp. 149. Macmillan, New York, 1896.
- 71. *Mosher, Martha B.* Child Culture in the Home, pp. 240. Fleming H. Revell, New York, 1898.
- 72. *Newell, William Welles.* The Games and Songs of American Children, pp. 282. Harper, New York, 1903.
- 73. *Newsholme, Arthur.* School Hygiene, pp. 143. D. C. Heath & Co., Boston, 1894.
- †74. *Oppenheim, Nathan.* The Care of the Child in Health, pp. 308 (1900), and The Medical Diseases of Childhood. The Macmillan Co., New York.
- *75. *Oppenheim, Nathan.* The Development of the Child, pp. 296. Macmillan, New York, 1898.
- †76. *Oppenheim, Nathan.* Mental Growth and Control, pp. 296. Macmillan, New York, 1902.
- 77. *O'Shea, M. V.* Linguistic Development and Education, pp. 347. Macmillan, New York, 1907.
- †78. *Perez, B.* The First Three Years of Childhood, pp. 294. C. W. Bardeen, Syracuse, New York, 1889.
- 79. *Phillips, Walter S.* Just About a Boy. Duffield & Co., New York, 1899.
- 80. *Plaisted, Laura L.* The Early Education of Children, pp. 398. Clarendon Press, Oxford, 1909.
- *81. *Preyer, W.* Infant Mind (Mental Development of the Child), pp. 170. D. Appleton, New York, 1893.
- *82. *Preyer, W.* Mind of the Child (Vol. 1. Senses and the Will, pp. 346. Vol. 2. The Development of the Intellect, pp. 317). D. Appleton, New York, 1892.
- 83. *Rankin, Francis H.* Hygiene of Childhood, pp. 140. D. Appleton, New York, 1890.
- 84. *Richards, Mrs. L. E. (Howe).* When I Was Your Age, pp. 210. Estes and Lauriat, Boston, 1893.
- †85. *Rowe, S. H.* The Physical Nature of the Child, pp. 207. Macmillan, New York, 1899-1910.
- 86. *Russell, E. H., and Haskell, Ellen M.* Child Observations; Imitation and Allied Activities, pp. 267. D. C. Heath & Co., Boston, 1896.
- †87. *Sandiford, Peter.* The Mental and Physical Life of School Children, pp. 346. Longmans, Green & Co., New York, 1913.

88. *Schoff, Hannah Kent.* The Wayward Child, pp. 274. The Bobbs-Merrill Co., Indianapolis, 1915.
89. *Scholz, Friedrich.* Die Characterfehler des Kindes, pp. 233. Eduard Heinrich Mayer, Leipzig, 1896.
90. *Scovil, Elizebeth Robinson.* Care of Children, pp. 360. Henry Altemus, Philadelphia, 1895.
91. *Scudder, H. E.* Childhood in Literature and Art, pp. 253. Houghton Mifflin Co., Boston, 1894.
92. *Shaw, E. R.* School Hygiene, pp. 260. Macmillan, New York, 1901.
93. *Shearer, Wm. J.* The Management and Training of Children, pp. 287. Richardson and Smith, New York, 1904.
- *94. *Shinn, Milicent W.* The Biography of a Baby, pp. 247. Houghton Mifflin Co., Boston, 1900.
- †95. *Shinn, Milicent W.* Notes on the Development of a Child. Vols. 1 and 2, pp. 424. Univ. of California Studies.
96. *Smith, William Hawley.* The Evolution of "Dodd"; a pedagogical story, pp. 245. Rand, McNally & Co., Chicago, 1884.
97. *Soldan, F. Louis.* Tiedmann's Record of Infant Life, pp. 46. School Room Classics XIII. C. W. Bardeen, Syracuse, New York, 1890.
98. *Spargo, John.* The Bitter Cry of the Children, pp. 337. Macmillan, New York, 1906.
99. *Stoner, Winifred Sackville.* Natural Education, pp. 293. The Bobbs-Merrill Co., Indianapolis, 1914.
- *100. *Sully, James.* Studies in Childhood, pp. 527. D. Appleton, New York, 1896.
101. *Swift, Edgar James.* The Mind in the Making, pp. 329. Chas. Scribner's Sons, New York, 1908.
102. *Swift, Edgar James.* Learning and Doing, pp. 249. The Bobbs-Merrill Co., Indianapolis, 1914.
- *103. *Tanner, Amy.* The Child, pp. 430. Rand, McNally & Co., Chicago, 1904.
104. *Taylor, A. R.* The Study of the Child, pp. 215. D. Appleton, New York, 1898.
- †105. *Thorndike, Edw. L.* Notes on Child Study, pp. 157. Columbia Univ. Contributions to Philos., Psych., and Educa., June, 1901; Vol. 8, Nos. 3 & 4. (p. 197 ff.)

106. *Thorndike, Edw. L.* The Study of Children, Teachers' College Record, 2:165-274.
- *107. *Tiedemann, F.* Record of Infant Life. C. W. Bardeen, Syracuse, New York, 1890.
- *108. *Tracy F. and Stimpf, Joseph.* Psychology of Childhood, pp. 219. D. C. Heath & Co., Boston, 1909. (Tracy alone, pp. 176. 1906.)
- †109. Transactions of the Illinois Society for Child Study. Vols. 1-5.
- †110. *Tucker, Blanche.* Notes on the Care of Babies and Young Children, pp. 68. Longmans, Green & Co., New York, 1907.
111. *Tweddell, Francis.* How to take Care of the Baby, pp. 175. The Bobbs-Merrill Co., Indianapolis, 1915.
112. *Tyler, John Mason.* Growth and Education, pp. 294. Houghton Mifflin Co., Boston, 1907.
113. *Uffleman, J.* Manual of the Domestic Hygiene of the Child, pp. 224. G. P. Putnam's Sons, New York, 1891.
114. *Urwick, W. E.* The Child's Mind, Its Growth and Training, pp. 269. E. Arnold, London, 1907.
115. *Wallin, J. E. Wallace.* The Mental Health of the School Child, pp. 463. Yale University Press, New Haven, 1914.
116. *Warner, Charles Dudley.* Being a Boy. Houghton Mifflin Co., New York.
- *117. *Warner, Francis.* The Study of Children and Their School Training, pp. 264. Macmillan, New York, 1898.
- †118. *Warner, Francis.* The Children: How to Study Them, pp. 108. Frances Hodgson, 1896.
- *119. *Whipple, Guy M.* Manual of Mental and Physical Tests, Part I. Simple Processes, pp. 365. Warwick & York, Inc., Baltimore, 1914.
- †120. *Whipple, Guy M.* Manual of Mental and Physical Tests, Part II. Complex Processes, pp. 336. Warwick & York, Inc., Baltimore, 1915.
121. *White, William Allen.* Court of Boyville, pp. 358. Macmillan, New York, 1910.
122. *Wiggin, Kate Douglas.* Children's Rights, pp. 235. Houghton Mifflin Co., Boston, 1892.

123. *Wiltse, Sarah*. Place of the Story in Early Education, pp. 132. Ginn & Co., Boston, 1892.
124. *Winston, Annie Steger*. Memoirs of a Child, pp. 169. Longmans, Green & Co., New York, 1903.
125. *Winterburn, Mrs. Florence*. From the Child's Standpoint, pp. 278. The Baker & Taylor Co., New York, 1899.
126. *Winterburn, Mrs. Florence*. Nursery Ethics, pp. 241. The Baker & Taylor Co., New York, 1899.
- †127. *Roder, A. H.* (Editor.) Journal of Childhood and Adolescence. (See Journal of Adolescence.) Vols. 1-3.

*A book worthy to be added to a student's library consisting of twenty or more books on the Essentials of Child Study.

†To be added to the above library providing the number of books can be increased to fifty or more.

CHAPTER I

BEGINNING, NATURE AND SCOPE OF CHILD STUDY

"To study is to observe, describe and think; and in studying children by scientific methods, we may hope not only to gain useful knowledge as to methods of educating and training boys and girls, but also to train ourselves to scientific accuracy in observing and thinking." Dr. Francis Warner, *The Children and How to Study Them*, p. v.

"In every age the child has been cared for, trained, instructed, watched over by hygienists, scolded and lectured by pedagogs. But with all this care and vigilance, with all this worship of which he has been the object, people seem to have forgotten until now how to study him, to observe him in himself, in the humble beginnings of his intellectual and moral life, and psychologists even have hardly concerned themselves with him." G. Compayre, *The Intellectual and Moral Development of the Child*, p. 1.

"It is not so much expert training in psychological laboratories or elsewhere that teachers and superintendents need, but their pressing need is rather to overcome the all too common adult self-conceit that presumes to know what individuals should be, before it knows what they are. The study of children increases our love and appreciation of them, which in turn will develop our ability to study them profitably." Dr. Herman T. Lukins, *Educa. Rev.* Feb. 1897.

"Whatever success has attended educational efforts in the past has been due to the direct or indirect study of human nature. The newness of the movement of the last ten years consists in the fact that this study has become self-conscious; that it concerns itself with the individual during the period of childhood and youth and that it uses to some extent the method of modern, inductive science. Child-study, as we understand it, is not, however, a pure science at all. Physiologists and psychologists who look out from their laboratories and laugh at our clumsy attempts to use their tools, make the mistake of thinking that we are trying to do their work. This is not true, tho we are trying to use some of their tools. Child-study is, at present, largely an applied science. It is prosecuted for the most part by teachers and parents who want knowledge that can be used in the development of the children for whose future happiness and usefulness they are immediately responsible." Prof. Earl Barnes, *Studies in Education*, 1:5.

"The importance of this new movement it is hard to overestimate. It has brought a new and large hope into a field that was in danger of lapsing, either to mere literary brilliancy or to aridity in theories of ultimate reality, or in the massing of experimental data on points not always selected with breadth, wisdom and perspective. It is doing a work for the child at school akin to that of the reformation for the religious life of the adult, and the verdicts on many of the most important questions of method and matter for all educational grades, from birth to college, when fully rendered, will be more or less final and will give education what it has long lacked—a truly scientific basis, and help to give to teachers a really professional status."

Dr. G. Stanley Hall, *Journ. of Childhood and Adolescence*, Vol. 3, p. 50.

"The observation of mental development in the earliest years naturally falls to the mother more than to any other person. But in order to initiate mothers into so complicated a science as that of psychogenesis, the results already attained in it must be presented to them in a form as easy of assimilation as possible. Other persons also—teachers, both male and female, fathers, older brothers and sisters—are to be induced to consider the importance of the facts in this field, which has indeed been lying open for hundreds of years, but has been little trodden, and is therefore a new field." Dr. W. Preyer, in *Preface to Infant Mind*.

"One point of much importance must be emphasized. While breeding can combine qualities already present in the selected individuals, and nurture can often bring such qualities to fuller development, neither breeding nor training can put in what is not already present. We can make new combinations, but we cannot create new qualities." Maynard M. Metcalf, *Evolution and Man*. *The Journal of Heredity*, 7:359.

"Flower in the crannied wall,
I pluck you out of the crannies,
I hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is."

—ALFRED LORD TENNYSON.

Mirrored in the soul of every boy and girl is the subconscious life of the adults about them. What we are today our children will be tomorrow. It is our own ideas and inner life that are reflected back to us by the conduct of the youth about us. The experien-

ces of the child in a large measure constitute the fruit of the man. "Whatsoever a man soweth, that shall he also reap." When we know what the past life of an individual has been, we know what the present life is.

The processes of evolution are slow under the most favorable circumstances, but higher levels are reached and greater efficiency and truer happiness attained under suitable environments.

What is Child Study? How different from genetic psychology? Studies that have aided in the movement: (a) Biology,—(1) Morphology, (2) Embryology; (b) Psychology,—(1) Physiological, (2) Experimental, (3) Genetic; (c) Pedagogy; (d) Sociology.

Child study is the conscious effort of teachers and parents to become better acquainted with the nature and nurture of the individual. It may be defined as the study of the psycho-physical development of the individual from the beginning of life to maturity. In this conscious, scientific phase, child study is of quite recent origin, scarcely extending farther back than 1880. Among the most prominent early leaders of the movement are: Preyer, Tiedemann, Sigismund, Kussmaul, Genzmer in Germany; Darwin, Sully, Pollock, Warner in England; Taine, Perez, Eggert, Binet, Compayre in France; Hall, Dewey, Baldwin, Barnes, Miss Shinn in America, not to mention others whose work has been exceedingly valuable in special lines.

The results of child study have changed in a marked degree the methods of teaching and the health, strength, happiness, and worth of children. There has been a growing tendency, however, to popularize the movement thru selfish interests, encouraging pseudo-experimentation, and giving for truth what is not truth. This is a discouraging feature to be met

with by progressive students in all fields of human activity, and tends always to hold back the advancement of civilization.

The child at birth is a bundle of possibilities—groups of uncoordinated organs, complexes, impulses, instincts,—the result of nature. These call for nourishment and may be developed thru right nurture. In the long run more depends on nature than nurture. No amount of cultivation can change tare into wheat, corn into oats. The wild oats of one generation may become the garnered fruit of the next. Under favorable environment the plastic organism develops rapidly (toward higher levels—evolution; or lower levels—devolution), but always in harmony with fixed norms. Nothing can strengthen the teacher more than a deeper and truer understanding of the individual to be educated.

The new interest in the study of biology and other subjects mentioned above including the better methods of approach (microscopy, fixing, staining, etc.) during the latter half of the nineteenth century, greatly stimulated the child study movement. The study of morphology disclosing the relation existing between form and function, the effect of experience (use) on the structure of organisms; the study of embryology revealing the close relation existing between the different forms of animal life, especially in the earlier stages. Man in common with all other animals, great and small, begins life in the same way—with a single cell—and seems to represent in his development all stages of lower animal life. Growth at first is largely the result of cell division and complexity of structure is very rapid. The change in weight during prenatal life is estimated by G. Stanley Hall, Adoles-

cence, i.e., at nine hundred five million fold, and the total number of cells in the adult human being is estimated at four hundred billion, numbers too large to be grasped or appreciated by the mind. The rapid changes of growth and development during these early years and their influence in shaping the character of the individual are not sufficiently appreciated.

Show the distinction between nature and nurture; heredity and environment. Is the teacher compelled to respect nature? Why? Of what does inheritance consist? How large a part does it play in the individual's development? Can bad inheritance be rendered good thru education? What is the meaning of infancy? Of educability?

CHAPTER II

THE PRACTICAL IMPORTANCE OF CHILD STUDY

(a) To the student of educational problems; (b) to the parents; (c) to the teacher; (d) to the child.

Is the child an adult in miniature?* Differences between the child and the adult. The higher the organism the more complex the psychic activities and the more difficult to understand. Knowledge may be increased in two ways, by observation and experience; by introspection and reflection. Before we can classify we must gather, before we can teach we must understand.

Note close relation existing between physical and mental effort; between healthy physical and healthy mental growth. The interaction and mutual relation between the physical and psychical, make it necessary that teachers and parents understand the nature of the child in order to be effective in their teaching.

In order that the teacher may keep in touch with the age, she needs to be interested in some living problem. Nothing broadens so much as the carrying on of original investigation. Such investigation should be thoro and of vital interest to mankind.

*The answer to this question is found in "The Development of the Child" by Nathan Oppenheim, Chaps. 2 and 3. Until within the last twenty-five years nearly all systems of education have been built upon the idea that the child is an adult in miniature. In 1882 Mrs. Harriet Beecher Stowe in *Little Foxes, Fault-finding*, p. 52, says: "Children . . . are grown people in *miniature* and need as careful consideration of their feelings as any of us." But the truth is that the child is different from the adult in almost every particular, and for this reason needs an almost entirely different treatment. Make note of the special differences for future application.

When we know the child, many of the difficult problems of correlation, curricula, etc., will disappear. When parents realize the importance of nourishment, physical growth, and health to mental and moral vigor and activity, we will have a stronger and happier race of people. Child study will in time bridge the gap between the home and the school. What are the difficulties in the study and the dangers on account of superficial work?

The teacher of the child ought to be a biologist and true physician, but more he must be a sympathetic student of human nature and have the ability to impart this knowledge.

REFERENCES FOR LESSONS I AND II

1. *Adler, Mrs. Felix.* Child Study in the Family. Child Study Mo., 2:138-151.
2. *Allen, Wm. J. G.* Child Study and Religious Education. Child Study Mo., 2:289-293.
3. *Baldwin, J. M.* Mental Development in the Child and the Race. Chap. I.
4. *Barnes, Earl.* The Present and the Future of Child Study in America. Barnes' Studies in Education, Dec. 1902, Vol. 2, pp. 363-372.
5. *Barnes, Earl.* A Forgotten Student of Child Study. Paidologist, Nov. 1901, Vol. 3, pp. 120-123.
6. *Barnes, Earl.* A Study Based on the Children of a State. Proc. of N. E. A., 1903, pp. 754-761.
7. *Bennett, Beulah.* Value of Child-Study to the Primary Sunday School Teacher. Kindergarten Mag., 13:259-263.
8. *Bolton, Frederick E.* New Lines of Attack in Child-Study. Proc. N. E. A., 1902, pp. 703-710.
9. *Browne-Crichton, Sir James.* Address at the Child-Study Conference. Paidologist, Nov. 1902. Vol. 4, pp. 132-137.
10. *Buchner, Edward Franklin.* Some Characteristics of the Genetic Method. Psych. Rev., 9:490-507.

11. *Burbank, Luther.* Train Children as I Do Plants. Jour. of Educa., Boston, 68:14-15.
12. *Burnham, Wm. H.* A Scheme of Classification for Child-Study. Per. Sem., 2:191-198.
13. *Cattell, Jas. McKeen.* The School and the Family. Pop. Sci. Mo., 74:84-95.
14. *Chamberlain, Alexander F.* Some Recent Child-Study Literature. Per. Sem., 9:43-49; A Systematic Plan of Child Study. Paidologist (Lond.), Nov. 1901, Vol. 3, pp. 124-139.
15. *Chapin, H. D.* Child Study in the Hospital. Forum, 17: 125-126.
16. *Claparède, Ed.* Experimental Pedagogy. Trans. by Mary Louch and Henry Holman. Chap. 1, Historical Sketch.
17. *Cravens, Frances.* A Plea for Child Study. Child Study Mo., 2:176-178.
18. *Dressler, Fletcher B.* Development of an Adequate Course of Manual Training for Elementary Grades. Proc. N. E. A., 1907, 766-771.
19. *Dressler, Fletcher B.* Twenty-five Years of Child Study. Proc. N. E. A., 1907, pp. 910-914.
20. *Drummond, W. B.* The Child, His Nature and Nurture. Chaps. 1 and 2.
21. *Elwes, Hervey.* The Modern Child.
22. *Hall, G. Stanley.* Aspect of Child Life and Education; also Child Study as a Basis for Psychology and Psychological Teaching. Add. and Proc. of the Inter. Congress of Educa., N. E. A., 1893, pp. 717-718.
23. *Hall, G. Stanley.* The Ideal School as Based on Child Study. Paidologist, April, 1902. Vol. 4, pp. 32-38.
24. *Hancock, John A.* The Observation of School Children. Per. Sem., Sept., 1901. Vol. 8, pp. 291-340.
25. *Hogan, Louise.* Study of a Child, Introduction.
26. *King, Irving.* The Psychology of Child Development. Chap. I.
27. *Kirkpatrick, E. A.* Fundamentals of Child Study. Chap. I.
28. *Krohn, W. O.* Practical Child Study. How to Begin. Child Study Mo., 1:161-176.

29. *Loesch, Angeline.* The Child Study Department of the Chicago Public Schools. Also in Proc. N. E. A., 1902, pp. 710-716.
30. *Louch, Mary.* Some Common Objections to Child Study. *Paidologist*, Nov., 1902, Vol. 4, pp. 137-141.
31. *Luckey, G. W. A.* Child Study in Its Effects Upon the Teacher. *Child Study Mo.*, 1:230.
32. *Luckey, G. W. A.* Practical Lines of Child Study. *Educa. Rev.*, 14:340. Also Proc. N. E. A., 1897, pp. 826-832.
33. *Mangold, Geo. B.* Infant Mortality in American Cities. *Annals of the Amer. Academy of Political and Social Science*, 31:484-494.
34. *Mangold, Geo. B.* Child Problems. Chaps. 1-3.
35. *Monroe, Will S.* Notes on Child Study in Europe. *Ped. Sem.*, 8:510-514.
36. *Morgan, Alex.* Child Study in Relation to the Training of Teachers. *Child Study*, 1:65-77.
37. *Morgan, C. Lloyd.* Child Study. *Paidologist*, 3:62-75.
38. *Nicholson, Zella R.* Child Study in the Kindergarten. *Child Study Mo.*, 2:675-684.
39. *Noss, Theodore B.* What Our Schools Owe to Child Study. *Proc. N. E. A.*, 1902, pp. 716-719.
40. *O'Shea, M. V.* Method and Scope of Child Study. *Child Study Mo.*, 1:129-134.
41. *Plaisted, Laura L.* The Early Education of Children.
42. *Sandiford, Peter.* The Mental and Physical Life of School Children. Chap. I.
43. *Sherrington, Charles Scott.* Some Points of Connection Between Child Study and Physiology. *Paidologist*, 4:75-84.
44. *Smedley, Fred W. and Christopher, W. S.* Chicago Report on Child Study Investigation. *Child Study Mo.*, 6:1-4; 127-140; 339-346. First Comprehensive Attempts at Child Study. Rep. Commissioner of Educa., 1901, 1:709-729.
45. *Sully, James.* Studies in Childhood, Introduction.
46. *Tanner, Amy E.* The Child, pp. 9-14.
47. *Terman, L. M.* Child Study; Its Reasons and Promise. *Calif. Univ. Chronicle*, 11:145-158. 1909.

-
48. *Thorndike, Edw. Lee.* The Study of Children. Teachers College Record, New York, 2:165 ff. (May, 1901).
 49. *Thorndike, Edw. Lee.* Notes on Child Study. Columbia Univ. Contributions to Philos., Psych., and Educa., June 1901. Vol. 8, Nos. 3-4.
 50. *Tibbey, T. G.* The Amateur and Child Study. Paidologist, 4:144-146.
 51. *Tibbey, T. G.* Child Study and the New Educational Authorities. Paidologist, 6:28-33.
 52. *Van Liew, Chas. C.* Child Study as Related to Instruction. Trans. Illinois Soc. of Child Study, 1:9-21.
 53. *Walker, M. R.* Caution in Child Study. Paidologist, 4:19-24; 84-92.
 54. *Wyss, C. von.* A Study of Children and Seedlings. Child Life, 1907. 9:67-69.

CHAPTER III

THE CHILD AT BIRTH AND ITS CARE

(a) **Physical Condition.** The form and contour of the body: the muscles, the vegetative functions, and motor centers connected with the fundamental movements are well developed; the nerve cells destined to form the central nervous system are complete in number, tho for the most part immature and undeveloped.

(b) **Reflex Functions.** Breathing rapid, averaging the first year about 44 respirations per minute; the fifth year, 26; in man, 18; rate of pulse at birth 130-140; end of the first year, 120-130; end of second year, 106; normal rate in man, 71. Rate of pulse varies in different individuals and with the kind and amount of activity. Other reflex and instinctive movements; their nature and influence on education.

(c) **Mental Conditions.** Mind is practically a blank until the senses are awakened by external stimuli. However sharp the first sensations may seem to be, there is but little mental clearness. The child learns slowly to understand the causes of impressions. The muscular sense is active and apparently much pleasure is derived from its exercises. Sense of heat and cold are present, as is also that of taste. Touch is vague; smell, doubtful; sight, absent for the first few hours; hearing is also absent.

(d) **Care of the Child.** At first the life of the normal child consists almost wholly in eating and sleeping. The amount of sleep required by different individuals under different circumstances varies, but judg-

ing from the amount taken by healthy children under favorable environments, the need may be stated as follows: During the first three months from 20 to 22 hours per day of 24 hours; from three to six months, 16 to 18 hours per day; from one to two years, 14 to 16 hours per day; from two to six years, 12 to 14 hours per day; from six to ten years, 10 to 12 hours per day; from ten to sixteen years, 8 to 10 hours per day. The growing child and the brain worker should never have less than the latter amount. The growing child may be induced to overeat but not oversleep. Many annoyances will be avoided and healthier conditions developed if the child from the first, is accustomed to habits of cleanliness and regular hours of sleep, alone in the dark. The evening bedtime should vary from six to eight during childhood; even the youth would be stronger and happier if he went to bed regularly not later than 8:30.

The natural food of the child is the mother's milk; when this is not to be had other milk should be substituted. To the infant milk is a perfect food containing all the requirements of a balanced ration as follows:

	Human Milk	Cow's Milk
Fat	3.50%	3.50%
Milk-Sugar	6.50	4.30
Proteids	1.50	4.00
Mineral Salts.....	0.15	0.70
Water	88.35	87.00

(Oppenheim)

All persons entrusted with the care of children should be familiar with dietetics. Departments of home economics should give special attention to the care of children and the foods best adapted to their needs.

The nervous system is very sensitive to impressions from without, and habits are quickly formed which may influence beyond repair the whole after life of the child. The disposition of the child may be greatly modified by the environment.

Fortunate is the child born in a sensible home with not over-indulgent parents. With wholesome food, cleanliness, fresh air, sunshine, rest and sleep the normal child is almost sure to thrive if left free to work out its own salvation.

REFERENCES

1. *Buckman, S. S.* Babies and Monkeys. 19th Cent., 36:727-743. Pop. Sci. Mo., 46:371-388.
2. *Buckman, S. S.* Human Babies—What They Teach. Nature, 62:226-228.
3. *Butler, N. M.* The Meaning of Infancy and Education. Educa. Rev., 13:58-75.
4. *Chamberlain, A. F.* The Child. A Study in the Evolution of Man. Children's Claim Upon Childhood, Rep. Comm. of Educa., 1899-1900. Vol. 1, pp. 810-825.
5. *Compayre, G.* Intellectual and Moral Development of Children, pp. 28 ff.
6. *Darwin, Chas.* Biographical Sketch of an Infant. Mind, 2:285-294. Also Pop. Sci. Mo., 57:197-205.
7. *Fiske, John.* The Meaning of Infancy. Chap. I.
8. Growth of Children. Ped. Sem., 1:117, 246-249, 279, 298, and 2:17-18.
9. *Drummond, W. B.* The Child; His Nature and Nurture. Chaps. 1 and 4.
10. *Hall, G. Stanley.* Notes on the Study of Infants. Ped. Sem. 1:127-138.
11. *Hall, Mrs. W. S.* First Five Hundred Days of a Child's Life. Child Study Mo., 2:330-339.
12. *Hogan, Mrs. L. E.* A Study of a Child, Also Children's Diet in Home and School.
13. *Hoefding, H.* Psychology, pp. 3-5.
14. *Kidd, D.* Savage Childhood. Chap. I.

15. *King, Irving.* The Psychology of Child Development. Chap. 2.
16. *Kirkpatrick, E. A.* Fundamentals of Child Study. Chap. 2.
17. *McLeish, Mrs. A.* Observations on the Development of a Child. Transactions of the Illinois Soc. for Child Study, 3: 109-124.
18. *Oppenheim, N.* The Development of the Child. Chaps. 2 and 3; also The Care of the Child in Health. Chaps. 4-9.
19. *Peckham, Grace.* Infancy in the City. Pop. Sci. Mo., 28: 683-689.
20. *Perez, B.* First Three Years of Childhood, pp. 7-13, 44.
21. *Preyer, W.* Mental Development of the Child, pp. 1-15.
22. *Preyer, W.* Senses and Will, pp. v-xv, 1-3, 72-77, 211, 217, 237.
23. *Putnam, Dr. Helen C.* Birth Registration and Prevention of Infant Mortality. Proc. Child. Conf. for Research and Welfare (Clark University). Vol. 2, 1910, pp. 119-128.
24. *Robinson, L.* Darwinism in the Nursery. 19th Cent., 30: 831-842.
25. *Shinn, Milicent W.* Notes on the Development of a Child. Vol. I, p. 10 ff., and the Biography of a Baby. Chaps. 2 and 3.
26. *Seguin, E.* Pre-Natal and Infantile Culture. Pop. Sci. Mo., 10: 38-43.
27. *Tweddell, Francis.* How to Take Care of the Baby.

CHAPTER IV

THE PHYSICAL CHILD, INCLUDING HEALTH, GROWTH, FOOD, EXERCISE, REST, SANITATION.

The average weight of a girl at birth is about 7.1 pounds. The boy is a few ounces heavier. There is usually a decrease in weight for the first few days, and then a rapid increase, which becomes proportionally less each month. The height or length at birth averages between 19 to 20 inches or about $2\frac{3}{4}$ inches in length to one pound in weight. The proportion changes until at five years the weight in pounds equals the height in inches. Average weight and height for the first few years:

Age	Ht. in. Inches		Wt. in Pounds	
	M.	F.	M.	F.
Birth	19.6	19.3	7.3	7.1
1 year	28.5	27.6	20.5	19.8
2 years	33.6	32.5	27.2	26.1
3 years	36.8	35.6	33.4	32.2
4 years	38.5	37.8	37.1	35.8
5 years	41.1	40.7	41.0	40.5

Table showing the average height and weight of 45,151 American boys and 43,298 American girls obtained from the calculations of Franz Boaz:

Age	Boys		Girls	
	Inches	Pounds	Inches	Pounds
5.5	41.7	41.6	41.3	40.1
6.5	43.9	45.2	43.3	43.4
7.5	46.0	49.5	45.7	47.5

Age	Boys		Girls	
	Inches	Pounds	Inches	Pounds
8.5	48.8	54.5	47.7	52.5
9.5	50.0	59.6	59.7	57.4
10.5	51.9	65.4	51.7	62.9
11.5	53.6	70.7	53.8	69.5
12.5	55.4	76.9	56.1	78.7
13.5	57.5	84.8	58.5	88.6
14.5	60.0	95.2	60.4	98.8
15.5	62.4	107.4	61.6	106.7
16.5	64.9	121.0	62.2	112.3
17.5	66.5	128.5	62.7	115.4
18.5	67.4	134.7	62.7	115.0

What facts of value to the teacher have been obtained thro the physical measurements of children? Note that (a) American children are taller than children of other nations; (b) children of the laboring classes are shorter and lighter than those of the non-laboring classes; (c) country children are larger than city children; (d) the death rate of children is large, reaching in some localities 25% during the first year, averaging in United States 14 to 16%. The causes are chiefly ignorance, carelessness, poverty, unsanitary conditions.

The effect of growth on death-rate, disease and school work. (1) Responsibility of the teacher for the physical condition of the children. (2) Low standards and almost criminal neglect of physical education. (3) Why is the physical education of vital importance? (4) What is the end in view?

The child is very different from the adult in instincts, interests, activities, needs. There are three important periods or levels of growth and development during childhood, duplicated again in the same order during adolescence. The first from birth to two or

three years is one of feeling, sense, and dermal development; the second from three to eight is one of volitional, fundamental muscular development; the third from eight to twelve is one of intellectual, accessory muscular development. What kind of mental food is best for each of these levels? Is there danger of arrest thru too early, or improper approach of the subject?

REFERENCES ON THE PHYSICAL CHILD

1. *Beyer, H. G.* The Influence of Exercise on Growth. *Am. Phys. Educa. Rev.*, 1: 76-87.
2. *Boaz, Franz.* Anthropological Investigations in Schools. *Ped. Sem.*, 1: 225-228.
3. *Boaz, Franz.* Growth of First-Born Children. *Sci. (N. S.)*, 1: 402-404.
4. *Boaz, Franz.* The Growth of Children. *Science*, 19: 256-7, 281-2; 20: 351-2; (*N. S.*) 5: 570-3; (*N. S.*) 1: 225-30. Report of U. S. Comm. Educa., 1904, Vol. 1, 25-132.
5. *Bobbitt, John F.* The Growth of Philippine Children. *Ped. Sem.*, 16: 137-168.
6. *Burk, F.* Growth of Children in Height and Weight. *Am. Jour. Psych.*, 9: 263-326.
7. *Burk, F.* Physical Measurements. *Northw. Mo.*, 8: 586-88.
8. *Burks, Jesse D.* The Health of School Children. *Proc. Child Conf. for Research and Welfare (Clark Univ.)*, Vol. 2, 1910, pp. 138-141.
9. *Channing, Walter.* Importance of Physical Training in Childhood. *Educa. Rev.*, 10: 262-272.
10. *Christopher, W. S.* Child Study in Chicago Public Schools. *Child Study Mo.*, 6: 127-140 (Oct., 1900).
11. *Christopher, W. S.* Report of Child-Study Investigation. *Annual Rep. of Board of Educa. of Chicago*, 1898-1899, pp. 27-79.
12. *Christopher, W. S.* Three Crises in Child Life. *Child Study Mo.*, 3: 324-335.
13. *Clouston, T. S.* Neurosis of Development, etc., pp. 7-9.
14. *Curtis, Henry S.* The Duty of the Community to School Children. *Proc. Child Conf. for Research and Welfare (Clark Univ.)*, Vol. 2, pp. 178-182.

15. *Davison, Alvin.* The Human Body and Health.
16. *Donaldson, H. H.* Growth of the Brain, pp. 51-80.
17. *Drummond, W. B.* An Introduction to Child Study. Chaps. 7 and 8.
18. *Eaton, Amasa M.* Vital Statistics in the United States. Proc. Child Conf. for Research and Welfare (Clark Univ.), Vol. 2, 1910, pp. 284-286.
19. *Farrand, Livingston.* Our Duty to the Tuberculosis Child. Proc. of Child Conf. for Research and Welfare (Clark Univ.), Vol. 2, 1910, pp. 183-186.
20. *Gilbert, J. A.* Researches on the Mental and Physical Development of School Children. Studies from Yale Psych. Lab., 1894, 2: 40-100.
21. Growth of Children. Science, 11: 28.
22. *Hall, W. S.* First Five Hundred Days of a Child's Life. Child Study Mo., pp. 332-342.
23. *Hall, G. Stanley.* Adolescence. Vol. I, Chap. I.
24. *Hancock, John A.* Work and Play. Education, 25: 257-268.
25. *Hastings, W. W.* Anthropometric Studies in Nebraska. Am. Phys. Educa. Rev., 5: 53-66; also Proc. N. E. A., 1899, pp. 1076-1084.
26. *Hudson, G. H.* Phenomena of Child Growth in Education. Educa., 14: 466-477.
27. *Kerr, Jas.* Psychological Variations in Children. Child Study, 2: 65-82. Oct., 1909.
28. *Key, Alex.* Schulhygienische Untersuchungen, p. 1 ff.
29. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 15-19.
30. *Kraepelin, Emil.* Measure of Mental Capacity in Children. Pop. Sci. Mo., 49: 756-63. Pub. Opin., 2: 529.
31. *Lee, Joseph.* Open Air Rooms in the Boston Schools. Proc. of Child Conf. for Research and Welfare (Clark Univ.), Vol. 2, 1910, pp. 187-191.
32. *LeGrange, M. F.* Physical Training of Young Children. Pop. Sci. Mo., 34: 449-54.
33. *McNamara, T. J.* Physical Condition of the Working-Class Children. 19th Cent., 56: 307-311.
34. *Marwedel, Emma.* Conscious Motherhood, pp. 334-340.
35. *Ogden, J.* Laws of Human Growth. Educa., 12: 207-212.
36. *Oppenheim, Nathan.* The Recognition of the Physical Development of the Child in the Training of Kindergarten. Proc. N. E. A., 1905, 344-346.

37. *O'Shea, M. V.* The Relation of Physical Training to Mental Activity. *Amer. Phys. Educa. Rev.*, 9:28-35.
38. *Parsons, Bell Ranger.* Physical Training by Means of Play. *School Journal*, N. Y., 69: 520-522.
39. *Pearson, K.* Dilettanteism and Statistics—A Criticism on the Growth of St. Louis School Children. *Nature*, 51: 145-6.
40. *Porter, W. T.* Growth of St. Louis Children. *Transactions of the Academy of Science, of St. Louis*, Vol. VI, No. 12, also *Am. Statist. Assn.*, 4:28-34.
41. *Porter, W. T.* Application to Individual School Children of Anthropological Measurements from the Generalizing Method. *Am. Statist. Assn.*, 3: 576-587.
42. *Porter, W. T.* Anthropometrical Measurements in Schools. *Educa. Rev.*, 11: 126-133.
43. *Porter, W. T.* The Physical Basis of Precocity and Dullness. *Am. Phys. Educa. Rev.*, 2: 155-175; also in the *Transactions of the Academy of Science, St. Louis*, 6: 161-181.
44. *Prior, Mary D.* Notes on the First Three Years of a Child. *Ped. Sem.*, 3: 339-341.
45. *Rankin, Francis H.* Hygiene of Childhood, pp. 11-17, 137-140.
46. *Reid, G. W.* Relation of the Physical Nature of the Child to His Mental and Moral Development. *Proc. of N. E. A.*, 1907, 305-7.
47. *Robinson, L.* Darwinism in the Nursery. *Pop. Sci. Mo.*, 19th Cent., 30:831-842.
48. *Robinson, L.* The Primitive Child. *N. Am. Rev.*, 159: 467-478.
49. *Rowe, Stuart H.* The Child's Physical Development. *School Jour.*, N. Y., 71: 125.
50. *Rowe, Stuart H.* The School and the Child's Physical Development. *Proc. N. E. A.*, 1905, 742-749. Also in *Jour. Educa.*, Boston, 63: 116-117.
51. *Rowe, S. H.* Physical Nature of the Child. Chap. 12. Also see Index.
52. *Sandiford, Peter.* The Mental and Physical Life of School
53. *Stoner, Mrs. Winifred S.* Natural Education, pp. 245-257. Children. Chap. 2.

-
54. *Tanner, Amy E.* The Child. Chap. 2.
 55. *Tyler, J. M.* Study of Growth in Children. Proc. of N. E. A., 1908, 913-916.
 56. *Waller, Jessie O.* Mental and Physical Training of Children. Pop. Sci. Mo., 36: 213-222.
 57. *Warner, F.* Mental and Physical Conditions of Children. Jour. Statis. Soc. of London, 59: 125-162.
 58. *Warner, F.* Study of Children. Pages 6, 16, 27, 60.
 59. *West, G. M.* Growth of the Human Body. Educa. Rev., 12: 284-289.
 60. Zeitschrift fur Schulgesundheitspflege.
 61. Northwestern Monthly (Physical Child Number), July, 1897, 8: 1 ff.

CHAPTER V

THE NERVOUS SYSTEM

(a) **Brain growth.** The relation of size, weight, convolution and density of the brain to intelligence.

According to Leuret the ratio of brain weight to body weight increases as we ascend the animal scale. Beginning with the fishes the proportion of brain to body is 1 to 5668; in reptiles 1 to 1321; in birds 1 to 212; in mammals 1 to 186; in man 1 to 36. But there are some notable exceptions to the rule, as follows: the brain weight to body weight in the field-mouse is 1 to 31; marmoset 1 to 22; canary and linnet 1 to 20; blueheaded tit 1 to 12; the child at birth 1 to 6; at ten 1 to 14; at twenty 1 to 30. Primitive animals, as the dinosaurs, had immense bodies but small brains. Usually the convolutions increase in both convexity and number as we ascend the animal scale; texture and specific gravity may indicate intelligence.

At birth the brain weighs about 382 grams and differs but little in the sexes. It has reached one-fourth of its maximum weight, while the body has reached only about one-twentieth of its maximum weight. At the end of the first year the brain weighs $2\frac{1}{2}$ times as much as at birth, or nearly two-thirds of the adult brain. After birth a boy's brain grows more rapidly than that of a girl until the age of 14, when, according to Vierodt, the girl's brain surpasses the boy's for a time. The brain reaches its maximum weight in a girl at about 14 and in the boy two years later.

However, there may be a slight increase in brain weight until forty.

According to Kaes and Vulpius there is a rapid increase of the middle layer (highest level of Jackson) including the tangential fibers connecting different parts of the cortex between 18 and 38 or even 50. It is now that the developing tangential fibers become medullated or take on the myelin sheath. These fibers and the associative cells which they connect are probably concerned with higher intelligence (Flechsig) and enable the normal individual to become interested in abstract reasoning, science, higher analytic and synthetic processes, moral and esthetic judgments.

The brain, like the body, has periods of growth and periods of rest. A notable period of rest occurs at puberty. The increase in brain weight after birth is not due to increase in nerve cells, but to an increase in the size of these cells. At birth many of these cells are immature and undeveloped. They do not all develop at once, but follow a certain definite order. The cells controlling the vegetative functions and the fundamental movements attain their normal activity first; then those controlling the fundamental muscles and coarser sense discriminations, and later the accessory muscles and finer sense discriminations. Of what educational significance are these facts?

Nerve cells decrease in size during work (Hodge), while muscles grow during exercises, and lose bulk during subsequent rest (Parks, Bains' Logic, Bk. III, Chap. CVIII, note 6). Account for this.

(b) **Office of the nervous system.** For convenience, the different groups of nerve cells may be divided into (1) The sensory group, whose function is to convey

different impulses to the great central nerve mass. (2) The distributive (associative group), whose function is to take up and convey the different impulses to the third, or (3) Motor group, which completes the circuit by conveying the impulses to the organs of expression. The first and third groups differ but little in higher animals and in man. It is with the central group that the greatest differences occur. The function of this group of nerve cells is to serve the higher intelligence, judgment, reason, aesthetics, ethics and constructive thinking. In this group the brain of the man of 38 is twice as rich as the boy of 18 (Kaes). The office of the nervous system is to create, conserve and distribute nerve-force or energy. The nerve cells must depend for their surplus energy upon physical health and nutrition. The child's efficiency depends upon the amount of available nervous energy and his wisdom in using it. Why is it important to know the order of development and the nascent periods of individual growth?

REFERENCES

1. Anatomy, Physiology and Diseases of the Brain. Science, 5:258-260; 7:359-360.
2. *Arrowsmith, John*. Brain Development Through Play. Paidologist, 9: 52-64.
3. *Baldwin, J. M.* Maudsley on the Double Brain. Mind, 14: 545-550.
4. *Baldwin, J. M.* Mental Development in the Child and the Race: also a Review of the Same. Child Study Mo., 1: 191-192.
5. *Boaz, Franz*. Anthropological Investigation in Schools. Ped. Sem., 1: 225-228.
6. *Boileau, J. P. H.* Brain Weight and Brain Power. Pop. Sci. Mo., 22: 172-174. Brain Growth and Body Growth. Science, 10: 172-173.

7. *Burk, Frederick.* From Fundamental to Accessory in the Development of the Nervous System. *Ped. Sem.*, 6: 2-64; also a digest of *Rep. Comm. of Educa.*, 1900-1910, Vol. 1, 327-344.
8. *Burnham, W. H.* Outlines of School Hygiene. *Ped. Sem.*, 2: 9-18.
9. *Clarke, Edw. H.* The Building of a Brain.
10. *Clouston, T. S.* What the Brain Has to Do in Youth Besides "Getting Educated." *Child Study Mo.*, 5: 417-424.
11. *Donaldson, H. H.* The Growth of the Brain, pp. 103-105, 336-345; also *Education of the Nervous System. Educa. Rev.*, 9: 105-121; *Growth in Relation to Training. Trans. of Illinois Soc. of Child Study*, 1: 59-63.
12. *Drummond, W. B.* The Child: His Nature and Nurture, p. 56.
13. *Ferguson, John.* The Care of the Nervous System and Its Relation to Education. *Pop. Sci. Mo.*, 47: 528-538.
14. *Ferrier, David.* The Functions of the Brain.
15. *Gilbert, J. A.* Research on the Mental and Physical Development of School Children. *Studies from Yale Psych. Laboratory*, 1894, 2: 40-100.
16. *Gilbert, J. A.* Relation of Physical and Mental Growth. *Child Study Mo.*, 1: 222.
17. *Hall, G. Stanley.* Growth of the Brain. *Adolescence*, 1: 105-112.
18. *Halleck, R. P.* Laws of Cerebral Development and Modification of Child Study. *Proc. N. E. A.*, 1897, pp. 833-843.
19. *Hodge, C. F.* Some Effects of Electrically Stimulating Ganglion Cells. *Amer. Jour. of Psych.*, 2: 376-402.
20. *Hodge, C. F.* Process of Recovery from the Fatigue Occasioned by the Electrical Stimulation of the Cells of the Spinal Ganglia. *Am. Jour. Psych.*, 3: 530-543.
21. *Hyslop, Theo. B.* Brain Fag in Children. *Jour. of Preventative Med.*, 13: 603-612.
22. *Kidd, D.* Savage Childhood (The Dawn of Self-Consciousness). Chap. 2.
23. *Kirkpatrick, E. A.* Fundamentals of Child Study, p. 19.
24. *Krohn, Wm. O.* Physical Education and Brain Building. *Proc. N. E. A.*, 1903, pp. 818-823.

25. *Macnamara, N. C.* The Human Brain in Relation to Education. *Westminster Review*, 154: 634-640.
26. *Martin, E. S.* Mind of the Child. *Harper*, 114: 70-76.
27. *Mercier, Chas.* The Nervous System and the Mind.
28. *O'Shea, M. V.* Encouraging the Mental Powers of the Child. *Cosmop.*, 28: 358-362.
29. *Porter, W. T.* On the Application to Individual School Children of the Mean Values Derived from Anthropometrical Measurements by the Generalizing Method. *Am. Statis. Assn. (Boston)*, 3: 576-587.
30. *Power, M. A.* About the Minds of Little Children. *Educa.*, 6: 26-34.
31. *Preyer, W.* Mental Development of the Child (Infant Mind), p. 9.
32. *Preyer, W.* The Development of the Intellect, p. 272.
33. *Sandiford, Peter.* The Mental and Physical Life of School Children, pp. 81-107.
34. *Scribner, G. H.* Brain Development as Related to Evolution. *Pop. Sci. Mo.*, 46: 525-538.
35. *Shinn, Milicent W.* Notes on the Development of a Child.
36. *Simms, J.* Brain Weights, Human. *Pop. Sci. Mo.*, 31: 355-359.
37. *Spitzka, E. A.* The Brain Weight of Japanese. *Sci. n. s.*, 18: 371-373.
38. *Tanner, Amy E.* The Child, pp. 276, ff.
39. The Mental Condition of Babies. *Cornhill*, 7: 649-656.
40. The Size of the Brains in Men and Women. *Cornhill*, 7: 276-278.
41. *Warner, Francis.* The Study of Children, pp. 33-51. Mental Faculty, pp. 33-50.
42. *Waterman, Jr., R.* Anthropometric Statistics. *Am. Statistical Assn. (Boston)*, 2: 443-444.
43. *Whitaker, J. R.* Anatomy of the Brain and Spinal Cord.

CHAPTER VI

THE SENSE OF SIGHT

The child at birth cannot see, hear or smell. Touch, including temperature, sense, taste, and the muscular sense, are more or less responsive to the proper stimuli.

It is essential to effective teaching that the teacher become familiar with the anatomy, physiology, and hygiene of the sense organs and their relation to mental development. This is especially true of the eye and ear, the two sense organs that have the most to do with public education. Students who have not made an extended study of the eye and ear should do so before proceeding further with the course.

(1). **Sight observations indicate that the child is sensitive to light soon after birth.** This is shown by slight contractions of the pupil, and later by turning the head toward the light; also by slightly opening or closing the eyes to approaching or receding light. The ability to see objects occurs much later. A light so bright as to be painful to the child on first awakening may be borne later without any signs of pain. Note the accounts of early sensitiveness to light, and some of the early purposive eye movements. How do these agree?

(2). **Physical movements and adjustments of the eyes.** From the first the pupil accommodates itself to the brightness of the light by contracting and expanding. Both pupils contract when light affects one. At

first many of the eye movements are unsymmetrical. The look may be directed downward while the lids are being raised, or one eye may follow a moving object without the other. The eyes of the infant close reflexively from the first when the conjunctiva, the cornea, or even the lashes are touched, but winking as the result of a suddenly approaching object does not occur according to Preyer until the close of the second month. Does this indicate that touch precedes sight? What must be the physiological process in the child when differing intensities of light produce changed expressions? What eye movements may be considered inborn, and what acquired? Account for the contracting and expanding of both pupils of the eyes of the infant when only one is stimulated.

OBSERVATIONS SHOWING EARLY SENSITIVENESS TO LIGHT

1. "During the first day the child's eyebrows were contracted when a strong light was thrown upon the eyes even tho they were closed." Winifred Hall, *Child Study Monthly*, 2:458.
2. "Long before the close of the first day the child's expression, as he was held with his face toward the window, became suddenly different when I shaded his eyes with my hand." W. Preyer, *The Mind of the Child*. Part 1:2.
3. "On the second day the eyes closed quickly when a candle was brought near them." *Ibid*, 1:3.
4. "The eyes close (reaction time one second) from a sudden bright light in the eyes"—sixth day. Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 5.
5. "The eyes were fixed on a candle when a week old." Champneys, *Mind*, 6: 105.

6. "The eyes of a newborn child open by preference at twilight and in the evening." Epinas, quoted by Compayre in *The Intellectual and Moral Development of the Child*, Part I, p. 99.
7. "The second day, the child likes darkness better than light; he does not open his eyes except when in darkness." Cuiget-ibid, p. 100.

EARLY ADJUSTMENTS OF THE EYES TO LIGHT

1. "The eyes opened gradually within a few minutes after birth and were perfectly coordinated from the first." Dearborn, *Moto-Sensory Development*, p. 1.
2. "C's father noticed on the second day that a good deal of ocular movement was forthcoming." Jas. Sully, *Studies of Childhood*, page 401.
3. "At seventy-five hours (the fourth day) his eyes were wide open and turned from one object to another. The eyes were not in focus." Kathleen Moore, *Mental Development of a Child*, page 45.
4. "On the ninth day, the left eye opens somewhat more slowly than the right." Dearborn, *Moto-Sensory Development*, p. 7.
5. "It was on the twenty-third day of his life that my child who was gazing at the candle burning steadily at the distance of one metre before him, turned both eyes to the left when I moved the candle to the left and to the right when the candle was moved to the right." Preyer, *The Mind of the Child*, page 43.
6. On the fifty-second day, "L. seems to be trying to move her eyes, for she looks into her mother's face and is badly cross-eyed at these times, which is something entirely new with her." Dearborn, *Moto-Sensory Development*, page 21.
7. "On the fifty-seventh and fifty-eighth days, I noticed for the first time that winking made its appearance, occurring when I put my head quickly near the child's face." Preyer, *The Mind of the Child*, page 26.

8. "When he had attained the age of three months, non-co-ordinated movements of the eyes were no longer to be observed." Preyer, *The Mind of the Child*, page 37.

REFERENCES

1. *Black, J. S.* Education of the Physical Senses. *Educa.*, 16: 68-77.
2. *Chrisman, Oscar.* Sight and Hearing in Relation to Education. *Proc. N. E. A.*, 1904, pp. 939-946.
3. *Compayre, G.* Intellectual and Moral Development of the Child. Chap. III.
4. *Hall, Mrs. W. S.* First Five Hundred Days of a Child. *Child Study Mo.*, 2: 458-465.
5. *Kidd, D.* Savage Childhood (The Development of the Faculties). Chap. 4.
6. *Le Conte, John L.* Evidence of the Senses. *No. Am. Rev.*, 140: 85-96.
7. *Lovett, R. W.* The Development of the Senses. *Pop. Sci. Mo.*, 21: 34-37.
8. *Lubbock, J.* Problematical Organs of Sense. *Pop. Sci. Mo.*, 34: 101-107.
9. *Oppenheim, N.* Origin of the Senses. *Sat. Rev.*, 81: 471-472. Development of the Child, p. 61.
10. *Perez, B.* First Three Years of Childhood, pp. 40-41.
11. *Preyer, W.* Mental Development of the Child; Also Infant Mind, pp. 1-15.
12. *Preyer, W.* The Mind of the Child (Part I, The Senses and the Will, p. 1 ff).
13. *Sandiford, Peter.* The Mental and Physical Life of School Children, pp. 108-123.
14. *Shinn, Milicent W.* Notes on the Development of a Child, pp. 10-56.
15. *Shinn, Milicent W.* Comparative Importance of the Senses in Infancy. *Northw. Mo.*, 8: 544-547.
16. *Shinn, Milicent W.* The Biography of a Baby, Chap. 3.
17. *Tanner, Amy E.* The Child, pp. 69 ff.
18. *Tracy, F.* Psychology of Childhood, pp. 1-8; 7th Ed., pp. 1-6.
19. *Warner, Francis.* Study of Children, p. 128.

CHAPTER VII

THE SENSE OF SIGHT—Continued.

(3) **Beginning of Conscious Perception.** To fixate an object the child must have control over some of the muscles of the head and eyes. Evidently fixation does not occur before the tenth day. Preyer, Raehlman, Witewski. From the first the fovea is the most sensitive part of the retina and the eyes or even the head may turn so as to bring the direct rays of light upon it.

At first the infant simply stares passively in the direction of the bright object with no volitional effort, but after the first few weeks it becomes able gradually to fixate objects and to turn from one object to another, then to follow slowly moving objects. This requires considerable co-ordination of movements and is generally noticed first about the fifth or sixth week. A little later the child has changed from simply looking at objects to the observation of objects and the active searching for them. Raehlman points out two specially important periods in this development, one at about the end of the fifth week when the child begins to fixate objects in the direct line of vision, co-ordinating the eye and lid movements; the other at the end of the fifth month, when the child first seems to be attracted by objects on the periphery of the field of vision. The latter period serves especially for development of the powers of

observation and the association of visual and tactile sensations.

OBSERVATIONS SHOWING THE BEGINNING TO FIXATE OBJECTS

1. "Again on the eleventh day, the child seemed to be much pleased by a candle burning before him at a distance of one-half metre, for he gazed at it steadily with wide open eyes." Preyer, *The Mind of the Child*, page 3.
2. "In like manner behaved a female child who, on the 14th day directed her gaze, which had been fastened upon her father's face, to some one who came up, and, at the sight of this person's head-covering, the child's gaze became rooted as if with surprise." Frau Professor Von Strümpell, from Preyer, *The Mind of the Child*.
3. "On the twenty-fifth day my child fixed his eyes for the first time upon the face of his nurse, then upon mine and his mother's, and when I nodded, he opened his eyes wider, and shut and opened the lids several times." Preyer, *The Mind of a Child*, page 30.
4. "In the third week the child looked long and steadily at a bright red waist worn by his aunt." Winifred Hall, *Child Study Monthly*, 2:458.
5. "In the tenth week the child looked attentively at a stray lock of dark hair hanging beside a familiar face." Kathleen Moore, *Mental Development of a Child*, page 54.
6. "A third child began, after the end of the sixteenth week, to look at its hands." E. Schulte, in Preyer, *The Mind of the Child*, page 47.

EARLY EYE MOVEMENTS

1. On the twenty-eighth day—"He turned his head (while lying down) in order to follow with his eyes the face of a person speaking to him." Kathleen Moore, *Mental Development of a Child*, page 46.

2. "I used my hand to move to and fro before the baby, and could not satisfy myself that she followed it, tho she sometimes seemed to; but the day after she was a month old I tried a candle, and her eyes followed it unmistakably; she even threw back her head to follow it farther." Millicent Shinn, *The Biography of a Baby*, page 68.
3. "In the fifth week, as the mother was brushing her hair, the child's eyes followed the slow motions of the brush." Winifred Hall, *Child Study Monthly*, 2:459.
4. "The last observation of the matter was recorded on the thirty-seventh day when the child followed moving objects in the room—as a person—by turning both eyes and head, the eyes turning first." D. R. Major, *The First Step in Mental Growth*, page 341.
5. "His eyes followed his aunt across the room at the age of three and a half months." L. Hogan, *The Study of a Child*, page 17.
6. "Sigismund's boy at nineteen weeks paid great attention to the movements of a pendulum, and afterwards followed the movements of a spoon from dish to mouth and back again, with eager mien." Frederick Tracy, *The Psychology of Childhood*, page 6.
7. "But it was not till the twenty-ninth week that I saw the child look distinctly beyond all doubt, after a sparrow flying by." Preyer, *The Mind of the Child*, page 48.
8. "In the sixty-sixth week, lying on his back, his eyes followed the flight of a fly which circled somewhat slowly above his bed." Kathleen Moore, *Mental Development of a Child*, page 57.

(4) **Perspective.** At the first all objects are seen as if at the same distance. Observations on the blind just restored to sight indicate that objects first appear as touching the eyes. In perspective, the animal inherits at birth what the child must acquire slowly

thru experience. The animal has but few possible associations and these well established, while the child has innumerable potentialities, which rest on experience for development. The embryonic life of the child is too short for this myriad of associative tracts to be fully established, and each generation increases the number of potentialities and lengthens the dependent period. Education means little to the animal, but everything to the child.

Children learn to rightly interpret distance of objects in nature earlier than in pictures. Why is this? How does the individual learn to see perspective?

REFERENCES

1. *Brewer, Dunstan.* Mind of the Child. Kind. Mag., 20: 74-78, Nov., 1909.
2. *Compayre, G.* Intellectual and Moral Development of the Child, pp. 114-135.
3. *Darwin, Chas.* Biography of an Infant. Mind., 2: 286-287.
4. *Hall, Mrs. W. S.* First Five Hundred Days of a Child's Life. Child Study Mo., 2: 458-465.
5. *Harris, Mrs. L. H.* The Mind of the Child. Independent, 64: 1398-1399.
6. *King, I.* Psychology of Child Development, pp. 28-41.
7. *Marwedel, Emma.* Conscious Motherhood, pp. 334-359.
8. *Moore, Kathleen C.* Mental Development of a Child, pp. 51-60.
9. *Preyer, W.* The Mind of the Child. Senses and Will, pp. 41-71.
10. *Perez, B.* First Three Years of Childhood, pp. 224-228.
11. *Shinn, Milicent W.* Notes on the Development of a Child. Vol. 1, pp. 14-25; also Interest in Seeing, pp. 79-88. 79-88.
12. *Sully, J.* Studies of Childhood, pp. 401-406.
13. *Tanner, Amy E.* The Child, 82-93.
14. *Taylor, A. R.* The Study of the Child, pp. 41-53.
15. *Tracy, F.* Psychology of Childhood, pp. 8-14; 7th Ed., pp. 6-11.
16. *Uffelmann, J.* Domestic Hygiene of the Child, pp. 183-190.

CHAPTER VIII

THE SENSE OF SIGHT.—Continued

(5) **Color Discrimination.** We may safely assume that at first all children are absolutely color blind, only light and darkness being discriminated. A bright colored object may attract not on account of the color but on account of the light it contains. This is doubtless the case of the girl ten days old, reported by Mrs. Talbot, who seemed attracted by the various colors of her mother's dress; also with Preyer's boy who, when 23 days old, seemed attracted by a rose colored curtain, brightly lighted by the sun.

Make note of all cases of early color perception for the purpose of comparison. When does the child see color as color? Why difficult to determine? What theory of color seems most plausible? What facts of interest have been noted thru a study of the effects of indirect color vision?

In order to test the color sense it is necessary to have the colors as nearly alike as possible in the degree of brightness. A simple test: Place within the child's reach, when able to sit alone, one small hank of zephyr, red, yellow, blue or green, etc., along with five similar hanks of neutral gray of equal brightness, or light intensity, and watch when the child first singles out the colored hank. Results of such test will be given in class.

1. What are some of the methods of testing color blindness?

2. What method yields the most accurate results?
3. Is color blindness curable?
4. What per cent of men and women are color blind?
5. What is the basis of color harmony, i. e., the true test of harmony of colors?

The center of the retina is the first to become sensitive to color, and this sensitive color area gradually increases thru youth up to adult life. There is only about half as much of the retinal surface sensitive to green and red as to yellow and blue. Can you account for these observed facts?

OBSERVATIONS ON COLOR DISCRIMINATION

(In some cases at least these observations may not indicate color discrimination.)

1. "The first object that made an impression on account of its color, upon my boy, was probably a rose colored curtain which hung, brightly lighted by the sun but not dazzlingly bright, about a foot before the child's face. This was on the twenty-third day. The child laughed and uttered sounds of satisfaction." W. Preyer, *The Mind of the Child*, page 6.
2. "With respect to vision—his eyes were fixed on a candle as early as the ninth day, and up to the forty-fifth day nothing else seemed thus to fix them, but on the forty-ninth day his attention was attracted by a bright colored tassel, as was shown by his eyes becoming fixed and the movements of his arms ceasing." Chas. Darwin, *Mind*, 2: 286.
3. Sixty-ninth day—"L. looked for sometime at the violets printed on her bed covering and then tried to pick them up." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 32.

4. "In the third month R's pleasure in looking at brightly colored objects became more pronounced. On the fifth day of the month, brightly colored tassels, dangled over the child, evoked broad smiles and wriggling, the latter being a forerunner of reaching toward and grasping." D. R. Major, *First Steps in Mental Growth*, page 78.
5. "One boy began before he had reached the age of four months, to prefer a brilliant red to other colors." Genzmer-Preyer, *The Mind of the Child*, page 20.
6. "The sight of a yellow flower (sixteenth week) incited him to his first successful effort to obtain a desired object." Winifred Hall, *Child Study Monthly*, 2:460.
7. "One hundred eighty-third day—She consistently picks her bright-red celluloid rattle-ball (two-and-a-half inches in diameter) out of a basket of toys." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 82.
8. "By the twenty-seventh week he manifested a decided preference for yellow, stretching out his hands for anything of that color—lemons, oranges, sunflowers, and even the butter on the table." Winifred Hall, *Child Study Monthly*, 2:460.
9. "In his nineteenth month C. was observed to designate by the sound "Appo" (apple) a patch of redish color on the mantlepiece, which bore in its form no discoverable resemblance to an apple." James Sully, *Studies in Childhood*, page 422.
10. Five hundred fifty-third day (about 1½ years)—"L. rarely now confuses yellow, red, blue, and black. She always picks out yellow as her favorite among these four—yellow, red, blue, and black." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 172.

REFERENCES

1. *Abney, Wm. DeW.* Tests for Color Blindness. In *Color Visions*, pp. 167-186.

2. *Baird, J. W.* The Problems of Color Blindness. Psych. Bulletin, 5: 294-300, Sept., 1908.
3. *Baldwin, J. M.* New Methods of Child Study. Science, 21: 213-214, Apr. 21 and 28; also found in his Mental Development in the Child and Race, pp. 34-47; 48-55.
4. *Bryan, W. L.* Suggestions on the Study of Children. Transactions Illinois Society for Child Study, Vol. 1, No. 1, pp. 64-73.
5. *Dougall, Wm.* An Investigation of the Color Sense of Two Infants. British Jour. of Psych., 2: 338-352.
6. *Edridge-Green, F. W.* Color Blindness and Color Perception, pp. 257-307.
7. *Franklin, Christine Ladd.* Color Interpretation of the Eskimo. Psych. Rev., 8: 396-402.
8. *Jefferies, Dr. B. Joy.* Frequency of Color Blindness. In "Color Blindness," pp. 111-124 and 182-195.
9. *Kirk, Mrs.* The Training of the Color Sense in Children. Child Life, 1907, 9: 119-122.
10. *Krohn, W. O.* How to Test the Vision. Child Study Mo., Vol. 1, pp. 164-165.
11. *Luckey, G. W. A.* Observations of the Indirect Color Range of Children, etc. Am. Jour. of Psych., 6: 489-504.
12. *Marsden, Rufus.* The Study of the Early Color Sense. Psych. Rev., 10: 37-47.
13. *Monroe, Will S.* Color Sense of Young Children. Paidologist, 1907, 9: 7-10.
14. *Preyer, W.* The Mind of the Child; and also Senses and Will, pp. 6-22.
15. *Preyer, W.* Mental Development in the Child. Infant Mind, pp. 12-13.
16. *Rivers, W. H. R.* The Color Vision of the Eskimo. Proc. Cambridge Philos. Soc., 11: 143-149.
17. *Scripture, E. W.* System of Color Teaching. Educa. Rev., 6: 464-474; 7: 382.
18. *Scripture, E. W.* Tests on School Children. Educa. Rev., 5: 52-61.
19. *Scripture, E. W.* A Safe Test for Color Vision. Studies from Yale Psych. Lab., 1901, 8: 1-20.
20. *Shinn, Milicent W.* Notes on the Development of a Child. Vol. 1, 25-56.

-
21. *Taylor, Wm. J.* The Color Element in Early Education. Jour. of Ped., 16: 315-327.
 22. *Tracy, F.* Psychology of Childhood, pp. 14-18; 7th Ed., pp. 11-18.
 23. *Washburn, W. W., and Houston, H. E.* On the Naming of Colors. Am. Jour. of Psych., 18: 519-523.
 24. *Whitney, A. S.* Some Practical Results of Child Study. Child Study Mo., 2: 16-21.
 25. *Wolfe, H. K.* The Color Vocabulary of Children. Neb. Univ. Studies, July, 1890, pp. 205-234.

CHAPTER IX

THE SENSE OF SIGHT—Concluded

(6) **Defective Vision.** The importance of normal vision will be appreciated when we understand that most of our knowledge is acquired thru the sense of sight. An unremedied defect in vision may prove as serious to the child's education as the entire loss of sight, for in the latter case other senses are educated to take the place of vision. Teachers and parents should know how to direct and remedy the more common defects of vision. Children have been considered dull or indolent when the real trouble was due to a defect in sight or hearing. Common defects of sight which may be remedied by the use of glasses are myopia, hypermetropia and astigmatism.

Dr. Cohn of Breslau in examining the eyes of 10,060 children found 1,072 myopic, 239 hypermetropic, 23 stigmatic and 239 with impaired vision as the result of previous sickness. Further tests in elementary village schools showed 1% myopic; in elementary town schools 6.7%; in intermediate schools 14.3%; in high schools 19.7%. Drs. Loring and Derby of New York found that in the lowest classes 3.5% of the children were myopic; in the highest classes 26.78%. Other investigations show that myopia increases rapidly during school life, averaging (under favorable conditions) from 2% in the lowest grades to 25% or more in the highest grades.—Account for this. How can it be remedied? What are the best tests for discover-

ing defective vision? When fatigued, or sleepy, or when recovering from sickness the eyes are apt to be injured by use. Headaches frequently result from over-strain of the muscles of accommodation. What colors of print are best for the eyes? Notice the signs on sign boards and observe what combinations of colors can be seen at the greatest distance.

What encouraging improvement of the eye sight of school children has occurred in recent years thru improved methods of teaching and better sanitation of homes and school buildings?

REFERENCES

1. *Adams, Almeda C.* The Education of the Blind Child with the Seeing Children in the Public Schools. Proc. N. E. A., 1908, pp. 1137-1142.
2. *Allport, Frank.* The Eye and Its Care; also Defective Sight in American Children. Rev. of Rev., June, 1897, 15: 696-699.
3. *Allport, Frank.* The Eyes and Ears of School Children. Proc. Third Congress Am. School Hygiene Assn., Chicago, Ill., 1909, pp. 218-231; also A Plea for the Examination of School Children's Eyes, Noses and Throats. Proc. N. E. A., 1909, pp. 266-273.
4. *Allport, Frank.* Tests for Defective Vision. Educa. Rev., 14: 150-159.
5. *Bell, A. G.* Correlation of Defective Senses. Science, 5: 127-129.
6. *Booth, F. W.* (Chairman). Report of Committee on Statistics of Defective Sight and Hearing of Public School Children. Proc. N. E. A., 1903, pp. 1036-1037, and 1904, pp. 946-952.
7. *Burnett, S. M.* Hints on the Use and Care of Eyes. Scribner Mo., 14: 700-706.
8. *Burnham, W. H.* School Hygiene. Ped. Sem., 2: 33-39, 59-61.
9. *Campbell, Mary R.* Some Laboratory Investigations of Subnormal Children. Proc. N. E. A., 1904, pp. 744-754.

10. *Cattell, J. McK.* Tests on Senses and Faculties. *Educa. Rev.*, 5: 257-265.
11. *Cohn, Herman.* Eyes and School Books. *Pop. Sci. Mo.*, 19: 54-59.
12. *Cohn, Herman.* Hygiene of the Eye in Schools, pp. 37-53, 84-87, 131-145.
13. *Cohn, Herman.* Eyesight and School Work. *Science*, 12: 207-209.
14. *Cohn, Herman.* Effects of Student Life on Eyesight. Bureau of Education, Circular of Information, 1881-82, No. 6 (1881), 327-350.
15. *Eberhardt, John C.* The Examination of the Eyes of School Children. *Proc. N. E. A.*, 1906, pp. 173-177.
16. Eyesight of Children. *Sat. Rev.*, 82: 57-58.
17. *Fox, L. W.* Care of the Eyes in Infancy and Youth. *Jour. Frankl. Inst.*, 132, 172 (1891).
18. *Galbraith, L. N.* The Eyes of School Children and Their Defects. *Child Study Mo.*, 1: 390-391, and *Proc. N. E. A.*, 1896, p. 850.
19. *Gray, Mary R.* What Chicago is Doing for the Abnormal Child. *School Jour.* (New York), 69: 585-586.
20. *Green, S. M.* What Teachers May Learn from the Model School for the Deaf and Blind, and Their Exhibits. *Proc. N. E. A.*, 1904, pp. 937-939.
21. *Greenwood, Allen.* Some Eye Defects of Feeble-minded and Backward Children. *Proc. N. E. A.*, 1903, pp. 1023-1028.
22. *Hall, Percival.* Defective Sight and Hearing of School Children. *School Jour.* (New York), 69: 91.
23. *Howe, L.* Art and Eyesight. *Pop. Sci. Mo.*, 47: 458-471.
24. *Lewis, F. Park.* Conservation of Vision and the Prevention of Blindness. *Proc. N. E. A.*, 1910, pp. 1055-1061.
25. *MacLean, W.* Effects of Study on the Eyesight. *Pop. Sci. Mo.*, 12: 74-86.
26. *Risley, S. D.* Defective Vision in School Children. *Educa. Rev.*, 3: 348-354.
27. *Roosa, D. B.* Effects of Civilization on the Eyes. *Cosmop.*, 13: 759-768.
28. *Roosa, D. B.* Shall We Put Spectacles on Our Children? *Pop. Sci. Mo.*, 25: 429-430.

29. School Life and Eyesight. Pop Sci. Mo., 1:760-761.
30. Scott, W. D. The Sacrifice of the Eyes of School Children. Pop. Sci. Mo., 71:303-312.
31. Standish, Miles M. D. Facts and Fallacies in the Examination of School Children's Eyes. Proc. N. E. A., 1903, pp. 1020-1023.
32. Swift, Edgar J. Eye Defects in Students and Children. Ped. Sem., 5:202-220.
33. Weeks, J. E. The Care of the Eyes of Children While in School. Teacher's College Record, 6:30-42.
34. Wells, David W. Sight and Hearing of School Children. Jour. of Educa., 51:99-100; 117:121-122, Feb. 15, 22, 1900.
35. West, G. M. Eye Tests on Children. Am. Jour. of Psych., 4:595-596.
36. Whitney, A. S. Some Practical Results of Child Study. Proc. N. E. A., 1896, p. 372.
37. Williams, Alida S. Visual Inaccuracies in School Children. Educa. Rev., 26:180-189.
38. Williams, H. W. How to Care for the Eyes. Atlan., 27: 62-67, 177-183, 332-337, 462-466, 636-639.
39. Wolfe, H. K. Defects of Sight. Northw. Mo., 8:35-39.
40. Yorke, S. Defective Eyesight. Pop. Sci. Mo., 24:357-361.

CHAPTER X

THE SENSE OF HEARING

Different views, based on more or less careful observations, as to when the infant is able to hear for the first time vary all the way from several hours to several days. Note and account for these differences. Personal observations will add to the value of the study. What are the conditions necessary to hearing? Which of these are wanting at birth? Hearing, as a rule, is necessary for the acquisition of speech, and plays an important part in all instruction. The speech that an infant hears has much to do with its articulation. Music and rhythm are early appreciated by the child and may be used as an important factor in education. Owing to the plasticity of the child's cerebral elements and the ease with which early formative processes take place, the child in time enjoys the sounds which were at first grating and disagreeable. For this reason the beauty and richness of the child's oral speech is the natural outgrowth of the speech he hears.

OBSERVATIONS INDICATING SENSITIVENESS TO SOUND

1. "Three hours after birth the child's hands were thrown up suddenly at the sound of an electric bell situated on the outer wall of the house." Wini-fred Hall, *Child Study Mo.*, 2:465.
2. "Dr. Deneke found one child of six hours who started and closed his eyes tighter at the sound of two metallic covers striking together; while Preyer

observed one who did not react at all on the third day, and another, who, on the sixth day, reacted only very slightly. Sully noticed, on the second day, a distinct movement of the head in response to sound, and this is confirmed by Baldwin. Burdach declares the child hears nothing during the first week." Fred Tracy, *the Psychology of Childhood*, page 22.

3. "A friend tells me that on the morning after her baby was born it was frightened almost into convulsions by the explosion of a cannon fire cracker near her window." A. R. Taylor, *The Study of the Child*, page 32.
4. "The first definite reactions to auditory sensations were observed on the second day during which the child several times stopped crying when his father began to whistle." Kathleen Moore, *Mental Development of a Child*, page 63.
5. "The baby showed no sign of hearing anything until the third day when she started violently at the sound of tearing paper, some eight feet from her." Milicent Shinn, *The Biography of a Baby*. Page 43.
6. "But he adds that another cautious observer, Feldbausch, has seen sleeping children more than three days old start when he broke the silence by clapping his hands hard." Kussmaul-Preyer, *The Mind of the Child*, page 77.
7. "The sixth day—she seemed to hear and notice a sirene whistle out on the Hudson river for she stopped moving." George Van Ness Dearborn, *Moto-Sensory Development*, page 6.
8. "The thirteenth day. When a watch was held at her ear L. turned her eyes in its direction for several seconds and made this reflex adaptation on several occasions." George Van Ness Dearborn, *Moto-Sensory Development*, page 10.
9. "During the first fortnight he often started on hearing any sudden sound, and blinked his eyes." Charles Darwin, *Mind*, 2: 286.

10. "The twenty-fourth day. Twice he stopped crying while the clock struck, and once he was aroused from a light sleep by its gong." Kathleen Moore, *Mental Development of a Child*, page 61.
11. Gensmer found the distances that the striking of a bell was heard by the child were: first day—8 inches; sixth day—18 inches; twenty-fourth day—24 inches. Oscar Chrisman, *Ped. Sem.*, 2:400.

BEGINNING OF LOCALIZATION THRU SOUND

1. "On the thirtieth day he began to turn his head in the direction whence sounds proceeded." Kathleen Moore, *Mental Development of a Child*, page 66.
2. "In the sixth week the baby for the first time turned his head toward a sound to see what made it." James Sully, *Studies in Childhood*, page 402.
3. "In the tenth week a girl child looked for the face of the person calling her, altho it was with difficulty that she held her head erect." Preyer, *The Mind of the Child*, page 47.
4. "At two and a half months, hearing her grandmother's voice she turns her head to the side from which it comes." M. Taine, *Mind*, 2:252.
5. "In the eleventh week I noticed for the first time what some others have not perceived before the second quarter of the year tho some have done so earlier, that the child beyond doubt moved his head in the direction of the sound heard." Preyer, *The Mind of the Child*, page 84.
6. "In the sixteenth week sounds began to prove a real source of distraction, causing him to pause and look around many times during his meal." Kathleen Moore, *Mental Development of a Child*, page 64.
7. "Altho so sensitive to sound in a general way, he was not able even when he was one hundred and twenty-four days old, easily to recognize whence a sound proceeded, so as to direct his eyes to the source." Charles Darwin, *Mind*, 2:286.

8. "In the twenty-first week he turned in the direction of sounds heard." Winifred Hall, *Child Study Mo.* 2:465.
9. "The 187th day the child knew when he was called, but it required three calls to induce him to turn toward the sound. At the first call a change took place in the facial expression, at the second he laughed and at the third he turned toward the speaker." Winifred Hall, *Child Study Monthly*, 2:466.

(1) When does the child first begin to localize sound?

(2) When does he begin to understand the meaning of sounds?

Defects in Hearing: Reichard of Riga in examining the hearing of 1,000 school children found 22% suffering from defective hearing. Weil of Stuttgart in examining 6,000 children found 31% defective; Moure found 17% defective; Saxton of New York 13% and Worrell of Terre Haute 25%. Probably the average will not fall short of 20%. Some of the causes of defective hearing: Congenital, closing of the auditory canal from inflammation, wax, or foreign bodies, festering or perforating the drum head, purulent or catarrhal inflammation of the ear, closing of the eustachian tube, cold in the head, and many diseases of childhood. What are some of the ways by which teachers may test the hearing of their children? What are adenoids? Their cause and effect upon health and hearing? What is the proper treatment?

REFERENCES

1. *Adams, Mabel E.* A Deaf Child of Six. *Educa. Rev.*, 10: 273-276.
2. *Allport, Frank.* The Eyes and Ears of School Children. *Proc. Third Congress Am. Hygiene Asso.* (Chicago, Ill.), Feb., 1909, pp. 218-231.

3. *Blake, C. J.* The Importance of Hearing Tests in Public. Proc. N. E. A., 1903, pp. 1013-1019.
4. *Bowles, Mary E.* Emotions of Deaf Children Compared with Emotions of Hearing Children. Ped. Sem., 3: 330-334; also Child Study Mo., 1: 213-215.
5. *Brandt, Francis Burke.* The State in Its Relation to the Defective Child. Proceedings N. E. A., 1901, pp. 876-880.
6. *Bruner, F. G.* The Hearing of Primitive Peoples. Archives of Psych., 2: 1-113, 1908.
7. *Bryan, W. L.* Eye and Ear Mindedness. Addr. and Proc. Intern. Cong. Educa. (N. E. A.), 1893, pp. 779-781.
8. *Chrisman, O.* The Hearing of Children. Ped. Sem., 2: 297-441.
9. *Chrisman, O.* Defects of Hearing. Northw. Mo., 8: 31-35.
10. *Chrisman, O.* Sight and Hearing in Relation to Education. Proc. N. E. A., 1904, pp. 939-946. (A Review.)
11. *Compayre, G.* Intellectual and Moral Development of a Child, pp. 136-145.
12. *Cutter, Ephraim.* Pupils' Defective Hearing. Proc. N. E. A., 1894, pp. 947-952.
13. Deficient Hearing Power. Child Study Mo., 1: 337-338. A Review of an Article by Dr. Permewan.
14. *Drummond, W. B.* An Introduction to Child Study, pp. 150-153.
15. *Fanning, Dr. A. M.* Deafness and Care of the Ears. Pop. Sci. Mo., 42: 211-216.
16. *Griffith, George.* Study of Children in the Utica Schools. Child Study Mo., 2: 434-437.
17. *Hall, Mrs. W. S.* The First Five Hundred Days of a Child's Life. Child Study Mo., 2: 465-469.
18. *Hinton, James.* Hygiene of the Ear. Pop. Sci. Mo., 3: 139-145.
19. Inflammation of the Ear in Early Life. Child Study Mo., 1: 153.
20. *Kirkpatrick, E. A.* Some Simple Methods of Recognizing Physical Fitness and Unfitness of School Children for School Work. Proc. N. E. A., 1905, pp. 762-763.
21. *Kratz, H. E.* Fatigue and Sense Defects. Proc. N. E. A., 1897, pp. 280-284.

22. *Krohn, Wm. O.* Hearing. *Child Study Mo.*, 1: 169-176.
23. *MacMillan, D. P.* Some Results of Hearing Tests of Chicago School Children. *Proc. N. E. A.*, 1901, pp. 880-888.
24. *Marwedel, Emma.* Conscious Motherhood, pp. 119-121, 360-369.
25. *Miller, E. H.* One Boy's Debt to Child Study. *Child Study Mo.*, 1: 259-261.
26. *Moore, Kathleen C.* Mental Development of a Child, pp. 60-72.
27. *Morgan, Charlotte L.* Outlook of Kindergarten Work for the Deaf in Leading Cities. *Kindergarten Mag.*, 14: 198-203.
28. *Percy, F. F.* Causes of Deafness in School Children. *Child Study Mo.*, 1: 97-109.
29. *Perez, B.* First Three Years of Childhood, pp. 41-43.
30. *Preyer, W.* The Senses and the Will, pp. 72-96.
31. *Preyer, W.* Mental Development in the Child (Infant Mind), pp. 5-6.
32. *Reik, H. O.* Report of the Examination of the Ears of 400 School Children. *Johns Hopkins Bulletin*, 1900, 11: 318-321.
33. *Shinn, Milicent W.* Notes on the Development of a Child, 1: 107-135.
34. *Shinn, Milicent W.* The Biography of a Baby, pp. 43, 72, 82, 91, 120, 137, 156.
35. *Tanner, Amy.* The Child, pp. 75-77.
36. *Taylor, A. R.* The Study of the Child, pp. 31-40.
37. *Townsend, E.* Education of the Deaf and Dumb in Relation to Child Study. *Paedologist*, 2: 3-9.
38. *Tracy, F.* Psychology of Childhood, pp. 20-26; 7th Ed., pp. 21-27.
39. *Wells, David W.* Sight and Hearing of School Children. *Jour. of Educa.* (Boston), 51: 99-100, 117.
40. *Whitney, A. S.* Some Practical Results of Child Study. *Proc. N. E. A.*, 1896, pp. 372-378.

CHAPTER XI

THE SENSE OF TOUCH

The sense of touch has not become so highly specialized as the other senses, but it has been termed, not unwittingly, the fundamental sense out of which all the other senses have developed. It is perhaps the first sense to give impressions to the child and the last to give way in age. While touch does not enter prominently into the education of the schools, it has great influence in shaping our judgment of space, time and reality. The child wishes to handle the objects that he sees, and the adult feels surer when he is able to reinforce his sight impression by touch. We all know how drawing and writing help us to remember a lesson, and to what extent touch can be trained to take the place of sight and hearing.

Kussmaul gives the eye-lashes of the infant as the most sensitive to touch impressions. Kroner and Frye agree, the latter holding that the hairs form during all ages the most sensitive touch apparatus of the body. Genzmer and Preyer hold that the cornea is more sensitive. All parts of the body are not equally sensitive to touch.

E. W. Scripture says; "The threshold of sensation for the sense of pressure in an average subject was 2 mg. for the forehead, temples and back of forearm and hand; 3 mg. for inner side of forearm; 5 mg. for nose, hip, chin and abdomen; 5-15 mg. on the inner

surface of the fingers, and 1000 mg. on heels and nails."

How does this agree in relation to the parts given by Preyer as the most sensitive in the child? What different movements are produced by touching the lips and tongue of an infant? Is the child more or less sensitive to touch, temperature and pain than the adult?

The reaction time of touch reflexes are longer in the new born than in the adult. How do you account for this? Also the fact that a prick or pinch may not produce a reflex when a slap will? When does active touch begin? Explain some of the early conditions and educational influences of the muscular feelings. Account for the quality known as common sense. Can it be cultivated? How?

OBSERVATIONS ON TOUCH

1. "Pressure caused by a hand resting upon his body was soothing to the child from birth." Kathleen Moore, *Mental Development of the Child*, p. 78.
2. "Even when only two hours old, at a period of life when there is certainly no sound for the ear and possibly no light for the eye C immediately clasped the parental finger which was brought into the hollow of the tiny hand." James Sully, *Studies in Childhood*, p. 400.
3. "Our baby showed from the first that she was aware when she was touched. She stopped crying when she was cuddled or patted." Milicent Shinn, *The Biography of a Baby*, p. 46.
4. "I saw my child in the twenty-first hour of life move both arms symmetrically, at a loud call, but this is perhaps to be attributed to being breathed on; for clapping of hands, whistling, speaking, produced no results, and on the second and third

- days no reaction upon sound stimulus could be induced." Preyer, *The Mind of the Child*, p. 81.
5. "First day—a mere touch on the upper lip or a stronger one on the lower lip causes the immediate screwing up of the mouth." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 2.
 6. "First day of life—According to Kussmaul, tickling of the inner surfaces of the wings of the nose with a feather calls from children first of all winking of the eyelids, a stronger on the tickled side than the other; if the irritation be increased, the child not only knits the eyebrows but moves the head and the hands, which latter it carries to the face." Fred Tracy, *Psychology of Childhood*, page 28.
 7. "The functional activity of touch was observed still more plainly on the second day, when the child was seen to carry out awkwardly enough what looked like exploring movements of the hands over his mouth and face." James Sully, *Studies in Childhood*, page 400.
 8. Sixth, eighth, eleventh, twelfth, twenty-second, twenty-fifth, fiftieth and fifty-fifth days. "During this period the softest touch of the lashes, of the edges of the lids, of the conjunctiva, or the cornea occasioned an immediate closing of the lids." Preyer, *The Mind of the Child*, page 26.
 9. "On the seventh day, I touched the naked sole of his foot with a bit of paper and he jerked it away, curling at the same time his toes like a much older child when tickled." Chas. Darwin, *Mind*, 2:285.
 10. "A feather passed over the eyes and nose of a child of fifteen days made it frown, contract its nose obliquely, and close its eyes." Perez, *First Three Years of Childhood*, page 39.
 11. "In this same twelfth week I saw the little fingertips go fumbling and feeling over our hands and dresses." Milicent Shinn, *The Biography of a Baby*, page 103.

12. "On the eleventh day of the third month the child, R. enjoyed rubbing his hands over a fur coat which was laid in front of him as he sat propped up in his crib." D. R. Major, *First Steps in Mental Growth*, page 79.
13. "In the fourteenth week, when rubbing his hands over a face, he encountered a handful of hair and was surprised thereby." Kathleen Moore, *Mental Development of the Child*, page 79.
14. "In the nineteenth week flies walking on the face of the child caused his muscles to twitch, but when on the hands they seemed not to annoy him." Kathleen Moore, *Mental Development of the Child*, page 79.
15. "In the twenty-ninth week he perceived the presence of salt or sugar in the mouth, acting as one does who finds his mouth filled with sand." Kathleen Moore, *Mental Development of the Child*, page 79.
16. "214th day. The rubbing of her fingers over the bristles of her hair brush made L. shiver and withdraw her hand from it vigorously." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 95.
17. "Egger adds that when Emile was fourteen months old he scratched his finger, he cried, but he did not show his finger nor put the other hand upon it." Compayre, *The Intellectual and Moral Development of the Child*, page 163.

ASSOCIATING VISUAL AND TACTILE SENSATIONS

1. "At a month and five days, likewise the child distinguished between himself and external things by making for the first time an effort to seize an object by extending his hands and by bending his whole body." Tiedemann (Perez Translation) *Record of Infant Life*, page 15.
2. "From the eighth to the tenth week his manual performances greatly improved in quality. He

was rapidly learning to carry the organ of touch to the point of which his eye told him." James Sully, *Studies in Childhood*, page 403.

3. "In the third month the little girl observed by Taine began to feel things with her hands, to move her arms to reach objects, to associate blots of color with tactile and muscular impressions of distance and of form." Taine-Compayre, *The Intellectual and Moral Development of a Child*, page 132.

REFERENCES

1. *Compayre, G.* Intellectual and Moral Development of the Child, pp. 154-164.
2. *Dresslar, F. B.* Psychology of Touch. *Am. Jour. of Psych.*, 6: 313-368.
3. *Hall, Mrs. W. S.* First Five Hundred Days of a Child's Life. *Child Study Mo.*, 2: 394.
4. *Marwedel, Emma.* Conscious Motherhood, pp. 127-129, 370-376.
5. *Moore, Kathleen.* Mental Development of a Child, pp. 72-82.
6. *Perez, B.* First Three Years of Childhood, pp. 36-40.
7. *Preyer, W.* Mental Development in the Child (Infant Mind), pp. 4-5.
8. *Preyer, W.* The Senses and the Will, pp. 96-116.
9. *Rivers, W. H. R.* The Senses of Primitive Man. *Science*, n. s., 11: 740-742.
10. *Shinn, Milicent W.* Comparative Importance of the Senses in Infancy. *Northw. Mo.*, 8: 544-547.
11. *Shinn, Milicent W.* The Biography of a Baby, pp. 46, 51, 63, 90, 99, 110, 118, 120-129, 141-160.
12. *Sully, Jas.* Studies of Childhood, p. 400 ff.
13. *Tanner, Amy E.* The Child, pp. 77-80.
14. *Taylor, A. R.* The Study of the Child, pp. 24-30.
15. *Tracy, F.* Psychology of Childhood, pp. 27-31.

CHAPTER XII

TASTE AND SMELL

Taste. According to Sigismund and Preyer, taste is the first sense to develop or furnish memory images. After the first few days the child distinguishes between sweet and sour. The former seems to give satisfaction and the latter to produce movements of repulsion. How can this early discrimination be explained?

Kussmaul experimenting on twenty infants and Genzmer on twenty-five infants just born, found that in most cases the child responds to sweet by sucking movements and to bitter by movements of repulsion, making similar facial expressions as adults under the same circumstances. Preyer agrees with the above. As some of the infants were premature, it seems to indicate that taste is ready to function before birth. But many infants did not respond in the same way and all showed a weaker sensibility to taste than adults. Many a mother has learned to her sorrow that it is difficult to break a child from sucking its thumb even tho she uses quinine, aloes, and the whole list of bitter herbs. Man is controlled by habit, as the lower animals are by instinct. In infancy these habits are quickly formed and may act as cables against health and progress. The sucking reflex is fully developed at birth and needs no practice other than that of food taking. To soothe the child by means of sugar teats, empty rubber nipples, fingers or

other pacifiers is vicious, and is apt to develop habits injurious to health and comfort. Fond parents should not forget that the primary physical functions of the infant are eating, breathing, sleeping, cleanliness. Nature can be trusted to provide for these functions when given a chance without the formation of bad and pernicious habits.

Are we justified in ascribing to taste the first impressions of pleasure? What other senses seem to furnish early pleasure impressions?

The early importance of taste is seen in the persistence of the child in placing every new object in its mouth.

May taste be relied upon as a true guide to the food best adapted to the needs of the body? Explain.

Smell. Taste and smell are closely associated, and neither seems far differentiated from touch. The functioning of the sense of smell is not possible in prenatal life, but according to the experiments of Kussmaul and others it must occur shortly after birth; however, pronounced and disagreeable odors, in most instances, are less acute in the child than in the adult. For the first two or three months the discrimination between pleasant and unpleasant odors is not very accurate and after two years a child is apt to place a richly perfumed object in its mouth rather than to its nose.

What part of a child's education would be lost if smell is lost?

In the education of the child ought we to give more attention to the cultivation of touch, taste, and smell? Why?

Experiments on sense discrimination of children and their value to the teacher.

EARLY INDICATIONS OF TASTE

1. "Kussmaul tested the sense of taste in this way in more than twenty newly born children, making use of cane-sugar, quinine, common salt, and tartaric acid. Kussmaul found that the salt, quinine, and acid occasioned grimaces as an expression of dislike but with much variation in the manifestation in individual cases. The sugar on the other hand produced movements of sucking." Preyer, *The Mind of the Child*, page 117.
2. "Thirteenth day. He rejected some medicines after having tasted several doses; he distinguished them from his food by the smell, and by the mode in which they were offered him." Tiedemann (Perez Trans.). *Record of Infant Life*, page 10.
3. "A baby fifteen days old who had just gone to sleep, and in whose mouth I put a feeding bottle filled with plain water, sucked it for a few minutes and then began to make faces, to open its mouth, and finally to cry." Perez, *The First Three Years of Childhood*, page 134.
4. "On the twenty-first day some soda mint in hot water was administered. He swallowed it, as he did water, giving no evidence of having experienced a different flavor." Kathleen Moore, *Mental Development of the Child*, page 82.
5. "Fifty-eighth day. She dislikes the taste of peppermint but will take it when sugar is added." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 24.
6. "Prior to the sixteenth week he was content to suck his own thumb when hungry, the feeling of milk in the mouth was, therefore, not an essential element in the feeding complex. But in the thirty-eighth week it undoubtedly was; for he then at once spat out the thickened cream of sterilized milk." Kathleen Moore, *Mental Development of a Child*, page 79. (Referred to under touch).

7. "113th day. She does not object in the least to the taste of castor oil." Geo. Van Ness Dearborn, Moto-Sensory Development, page 57.
8. "153rd day. When she is given a little wet cane sugar she works her taste organs, especially her tongue, very actively, just as a young calf does under the same circumstances." Geo. Van Ness Dearborn, Moto-Sensory Development, page 72.
9. "159th day. A piece of candy experimentally put within her lips causes them to take on the sucking position with active 'licking of the chops.'" Geo. Van Ness Dearborn, Moto-Sensory Development, page 74.

OBSERVATIONS ON SMELL

1. "Kussmaul has seen that new born children, even when asleep, show their sensitiveness to odor, if the fumes of asafoetida for instance are placed under their nose they quickly shut their eyelids tight, wrinkle up their faces, become restless, move their arms and head, wake up, then fall asleep again when the fumes have passed away." Compayre, The Intellectual and Moral Development of the Child, page 153.
2. "A girl babe of 18 hours obstinately refused the breast upon the nipple of which a little petroleum or oil of amber had been rubbed, but gladly took the other breast." Preyer, The Mind of the Child, page 132.
3. "But in my own child it was not till the eighth day of life that I saw this groping about (for the nipple) and whether the sense of smell co-operates in this is doubtful, for the child often sucked at the wrong place." Preyer, The Mind of the Child, page 134.
4. "Early in the third month the experiment was made of holding close to the child a cloth moistened with milk. He began at once to act as if hungry." Kathleen Moore, Mental Development of a Child, page 84.

5. "144th day. There was today just a suggestion of a frown of L.'s forehead from the odor of my tobacco breath." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 65.
6. "154th day. L. smiled repeatedly at the odor of sweet smelling incense which was burned near her." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 72.
7. "One child of ten months, when I prevented his seizing hold of a rose evidently begged me to give them to him. When I again held them up to his nose he remained some time quite motionless smiling with pleasure." Perez, *First Three Years of Childhood*, page 34.
8. "In the fifteenth month, freshly ground coffee and cologne water, both of which he liked very much to smell in his third year, made no impression at all, or only a slight one." Preyer, *The Mind of the Child*, page 134.
9. "In the eighty-sixth week he began to ask to have flowers given him to smell and leaves also." Kathleen Moore, *Mental Development of a Child*, page 84.

REFERENCES

1. *Bailey, E. H. S., and Nichols, E. L.* Delicacy of the Sense of Taste. *Nature*, 37: 557-558.
2. *Bailey, E. H. S., and Nichols, E. L.* Sense of Smell. *Nature*, 35: 74-75.
3. *Compayre, G.* Intellectual and Moral Development of the Child, pp. 145-154.
4. *Dillon, E.* A Neglected Sense. 19th Century, 35: 574-587.
5. *Henry, M. Charles.* Odors and the Sense of Smell. *Pop. Sci. Mo.*, 41: 682-690.
6. *Jastrow, J.* Plea for Sense of Smell. *Science*, 8: 520-521. (Old Series.)
7. *Marwedel, Emma.* Conscious Motherhood, pp. 122-127, 377-386.
8. *Moore, Kathleen.* Mental Development of a Child, pp. 82-84.
9. *Morgan, T. J.* Sense of Smell. *Science*, 10: 240. (Old Series.)

10. *Perez, B.* First Three Years of Childhood, pp. 32-35.
11. *Preyer, W.* The Mind of the Child (The Senses and the Will), pp. 116-140.
12. *Preyer, W.* Mental Development in the Child (Infant Mind), pp. 1-4.
13. *Shinn, Milicent W.* Notes on the Development of a Child, 1: 160-177.
14. *Shinn, Milicent W.* The Biography of a Baby, pp. 45, 126, 198.
15. *Tanner, Amy E.* The Child, pp. 73-75.
16. *Taylor, A. R.* The Study of the Child, pp. 7-17.
17. *Tracy, F.* The Psychology of Childhood, pp. 31-37.

CHAPTERS XIII AND XIV

FEELING

1. **Organic Sensation.** In addition to the special senses, there are the organic sensations or general feelings, due to internal changes, and generally classified as feelings of comfort and discomfort, pleasure and displeasure. They include feelings of hunger, thirst, satiety, cold, warmth, fatigue, etc. The nerves indispensable to such feelings are doubtless well developed at birth for unmistakable signs of comfort and discomfort occur during the first days and sometimes even during the first hours. These sensations may be considered the beginnings of emotion and as such furnish the springs of action of man's intellectual activities. The extraneous bodily activities and the comfort or discomfort to which they give rise interfere materially with the disposition, character, and mental product acquired. Hence a lecture inspiring to some in the proper mood may be dry and uninteresting to others suffering from annoying bodily disturbances. The richness of one's culture depends largely upon the health conditions, happiness, and optimism through which it was obtained. To truly educate one must possess for the time being the undivided attention and interest of the entire being. The social life with its disturbing influences must be reckoned with in order that the class-room may produce the most satisfying results.

2. **Emotion.** The special senses are the connecting

links or paths thru which the external may become internal; the muscles, the organs by means of which the internal is made to appear external—i. e., expressed or recorded. It is these organs that play the important role in the transformation from the strictly physical to the predominantly psychical. It is these organs also that are most affected by education. The special senses act as the instruments for gathering intelligence (knowledge), the muscles for distributing it.

The emotions are the most subtle of all the elements of mind and by far the most difficult to yield to scientific treatment. For this reason there is a dearth of scientific data concerning the nature and treatment of the feelings, altho they make up at least four-fifths of the whole life of man. The effort to solve the intricacy of feelings, and to educate them, has been one of indirection thru knowing or willing.

If we include the feelings under the emotions we may consider them as first of all psychic phenomena to appear with definiteness to the child. Men differ greatly in intelligence but only slightly in feelings. Hence the commonality of children. The feelings are racial and common. Experience separates us, feelings unite us. Partridge quotes G. Stanley Hall as saying: "Pleasure and pain have been the great educators in the world—a truth which in the present artificial conditions of life we are likely to forget." The easiest approach to the study of the emotions is thru a study of the basal feelings.

3. **Fears.** The fears of children as well as of adults differ greatly, due in part to environment, stage of development, state of health, fatigue, heredity. Make a list of the fears that seem to be due to the latter cause. What are some of the things that excite fear

in children? How do you account for these fears? Are children more or less fearful than adults? Why?

The tendency of the child is to pass thru all the fears of the race somewhat abbreviated. Fears that have been found useful to the race, persist and are inherited as instincts. These continue to exist long after their usefulness thru changed civilization has passed away. The great category of ancestral fears may often remain in the child's mind as a mere germ or rudimentary fear—the spice of life—or, thru concentration, one or more of these incipient fears may be developed into morbid fears, or persistent ideas undermining the whole life. It is both cruel and dangerous to arouse needless fears in children for the purposes of control.

A neurotic person increases the fears of children. Hence, a nervous mother or teacher is apt to produce untold injury and should be relieved of the care of children. It must not be inferred, however, that it would be advisable to free the individual from all fear, even if that could be done, for fear has its legitimate place and is a strong motive in education and progress.

To determine this place and to know how to evaluate the fears of children it is necessary to increase our knowledge of the subject. This can be accomplished in one of three ways: 1. Introspection of our present fears, and thru memory, those of childhood. 2. By gathering and studying the fears of a great number of children, differing in age, sex, nationality, environment. 3. By carefully observing and recording the beginning, development and disappearance of fears in individual children.

The study of children's fears, already made, indicates that the majority of fears are of an indefinite

type, "a vague something I know not what," while a very small per cent are based upon real danger. Many of these fears no longer serve any useful purpose. Girls are more subject to fear than boys. Education has a tendency to remove indefinite and useless fears.

A plan for studying the fears of children will be given in class. The tendency of fear is to restrain action and to lessen the joy of living. Overwork, deranged nervous system, and ill health are among the principal causes of fear.

SIGNS OF FEAR RESULTING FROM UNUSUAL SOUNDS

1. "Twelfth day. Fright from a sharp exclamation was shown by a short, gasping cry lasting, however, but a second or two." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 9.
2. "Considerably earlier, nineteenth day, R. was frightened, so it seemed, by ringing a small breakfast bell near him as he lay nursing. At first he stopped sucking, held his breath for a moment, then broke out crying." D. R. Major, *First Steps in Mental Growth*, page 89.
3. "On the thirtieth day this fright was still more strongly manifested. I was standing before the child as he lay quiet, and being called I said aloud, without changing my position 'ja' (yes). Directly the child threw both arms high up, quickly, and made a convulsive start with the upper part of his body, while at the same time his expression, which had been one of contentment, became very serious." Preyer, *The Mind of the Child*, page 82.
4. "Fifth week. The baby was lying half asleep on my lap when her tin bath was brought in and set down rather roughly, so that the handles clashed on the sides. At this she started violently, with a cry so sharp that it brought her grandfather anx-

The first five are probably not "fear" so much as "shock."

iously in from two rooms' distance; she put up her lip at the same time, with regular crying grimaces known to every nursery." Milicent Shinn, *The Biography of a Baby*, page 81.

5. "Once when he was sixty-six days old I happened to sneeze, and he started violently, frowned, looked frightened, and cried rather badly; for an hour afterward he was in a state which would be called nervous in an older person, for every slight noise made him start." Chas. Darwin, *Mind*, 2:286.
6. "On the sixty-eighth day R. was frightened by the strange sound made by gently tapping on a tin cup; and even as early as the last week of the first month **strangeness** seemed to be a factor of fear-producing sounds." D. R. Major, *First Steps in Mental Growth*, page 91.
7. "Ninety-seventh day. She listened to the crackling of a piece of brown paper and when it was carried behind her she nearly sat up, by a sudden movement, to look at it. When the paper was brought near to her she was very afraid of it, and even of me, although I no longer held it. Fear is shown by her starting backwards, etc., and by closing the eyes." Geo. Van Ness Dearborn, *Motto-Sensory Development*, pages 44-55.
8. "A child of three and a half months in the midst of the alarm of a house on fire surrounded by flames and tottering walls, showed neither astonishment nor fear. But the sound of the bugle and of the firemen coming up and the noise of the engine wheels made him tremble and cry." Perez, *First Three Years of Childhood*, page 64.
9. "Before the present one was four and a half months old, I had been accustomed to make close to him many strange and loud noises which were all taken as excellent jokes, but at this period I one day made a loud snoring noise which I had never done before. He instantly looked grave and then burst out crying." Chas. Darwin, *Mind*, 2:288.

10. "A strong wind making uproar in the trees quite upset him when he was about five months old, tho he soon got over his dislike and would laugh at the wind even when it blew cold." James Sully, *Studies in Childhood*, page 409.
11. "176th day. L. was frightened today also by the loud noise of putting in coal under the window; each time a basket full was turned in, her attention was engaged to it, then in about two seconds she would cry and cling convulsively to her nurse's neck, in a way not before observed." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 80.
12. "The first symptom of fear was noticed at about nine months. It was excited by an unusual sound in the room but not in the child's immediate neighborhood; he opened his eyes very wide and burst out crying." Champneys, *Mind*, 6: 106.
13. "Thus Champneys observed (1881) that his boy, when about nine months old showed signs of fear for the first time, becoming attentive to any unusual noise in a distant part of the room opening his eyes very wide and beginning to cry. A month or so later this child had a toy given him, that squeaked when it was squeezed. The child at once screamed, and screamed afterward again and again when it was offered to him." Preyer, *The Mind of the Child*, page 167.
14. "Nine months. At this time he showed a shrinking sort of fear when he heard a noise like a hammer striking something in the next room, and also when he heard a coal fall from the grate." L. Hogan, *The Study of the Child*, page 19.

QUOTATIONS INDICATING THE CHILD'S FEAR OF ANIMALS

1. "A little girl was afraid of cats as early as the fourteenth week of life." Sigismund-Preyer, *The Mind of the Child*, page 164.

2. "244th day. The first time the child saw a cat he excitedly held out his hands to touch it, but when taken near enough he drew back and turned his suddenly half closed eyes away from the cat." Winifred Hall, *Child Study Monthly*, 2:470.
3. "In the ninth month I observed him for the first time crying, turning away, and drawing back from fear when a small dog barked at a nurse who was carrying my child on her arm." Preyer, *The Mind of the Child*, page 167.
4. "321st day. L. was a little afraid of the sight of the calves today, altho she has not been so before." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 120.
5. "R's first sight of a worm (middle of the nineteenth month) caused fear. The child was sitting on the lawn playing when a little worm not over an inch long caught his eye. He at once began to tremble and cry." D. R. Major, *First Steps in Mental Development*, page 103.
6. "I may give as an instance that I took the child in question when two and a quarter years old to the Zoological gardens and he enjoyed looking at all the animals which were like those he knew such as deer, antelopes, etc., and all the birds, even the ostriches, but was much alarmed at the various larger animals in cages." Chas. Darwin, *Mind*, 2:288.

STRANGE OBJECTS AND PERSONS

1. "Since January when he was eleven months old, he has shown fear whenever he sees a wire dress form that is in the sewing room, and all our efforts to familiarize him with it seem to be useless." Mrs. Hogan, *The Study of a Child*, page 30.
2. "319th day. A large black football lay unnoticed upon the floor until it was suddenly kicked toward the child whereupon he screamed and threw his arms about his mother's neck but kept his head so

- turned as not to lose sight of the ball." Winifred Hall, *Child Study Monthly*, 2:469.
3. "The boy when about a year old, manifested the most abject terror at the sight (and sound) of a bright red humming top which had been bought for him." Frederick Tracy, *The Psychology of Childhood*, page 77.
 4. "For example when just twelve weeks old, he was quite upset by his mother donning a red jacket in place of the usual flower spotted dress." Jas. Sully, *Studies in Childhood*, page 410.
 5. "107th day. In the sixteenth week the child cried upon seeing a strange face." Winifred Hall, *Child Study Monthly*, 2:469.
 6. "About the middle of the fourth month she cried while a caller was present, dressed in black with a large hat." Milicent Shinn, *The Biography of a Baby*, page 135.
 7. "4 months, 10 days later she was quite upset when her father leaned over suddenly bringing his face into view from one side." Milicent Shinn, *The Biography of a Baby*, page 135.
 8. "About the same time (on the 137th day) I approached with my back towards him and then stood motionless; he looked very grave and much surprised, and would soon have cried had I not turned around."
 9. "5 months. In the first week of the month she was frightened by some one who came in suddenly between her and her mother, in a strange house and spoke abruptly in a deep, unfamiliar voice; and after that she often cried when strange men took her or came near her especially if they were abrupt." Milicent Shinn, *The Biography of a Baby*, page 171.
 10. "200th day. L. cried repeatedly today at a strange gentleman with white hair." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 86.
 11. "In the latter part of the fifteenth month, the child R. had a big cry when the doctor who had had

much experience with babies wanted to take him in his lap." D. R. Major, *First Steps in Mental Growth*, page 107.

12. "The child R. in the twenty-fourth month ran to his mother and hid his face in the folds of her dress when I appeared one day wearing a strange hat." D. R. Major, *First Steps in Mental Growth*, page 96.

FEAR OF FALLING

1. "Fear was first manifested in the fifth week. The child was laid nude on the bed, whereupon he started and threw up his arms as tho afraid of falling. His fears were removed by throwing a light covering over him or by putting on a garment." Winifred Hall, *Child Study Monthly*, 2: 469.
2. "Fifth month. When after having been carried on the arm he was lowered suddenly he managed to take a firm hold with his hands to protect himself from falling, and it seemed disagreeable to him to be raised very high." Tiedemann, *Record of Infant-Life*, page 22.
3. "178th day. L. for the first time showed undoubted fear of falling while being carried upstairs. She was looking down the stairs and clung convulsively, unmistakably afraid, to the neck of the person carrying her. Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 80.
4. "In the latter part of R.'s nineteenth month he developed the very curious fear of narrow cracks in side-walks. When we came to them while out for a walk, he would stop, utter a fretful cry and refuse to step across them tho in many cases they were not over an inch wide." D. R. Major, *First Steps in Mental Growth*, page III.

FEAR OF THE DARK

1. "2 years, 4 months. On the evening of Nov. 30, 1903, the first instance of what was possibly a distinct fear of the dark was noticed. Ruth wanted

to go out in the back room to put the butter away in the refrigerator. The room was dark. She at first peeped cautiously around the door and then said 'Mama, watch Ruth put away butter.' When she was thru she ran back into the kitchen saying, 'Tiger will get Ruth.'" C. F. and I. C. Chamberlain, *Ped. Sem.*, 11: 274.

Other cases should be added to the above list, including personal observations. The development of accuracy in observing, interpreting, and recording child activity is essential both in child study and successful teaching. Too often the teacher's knowledge of the child is so vague that she can be of no aid in his unfoldment, and may even thwart his highest development. It is pitiful to see the cruel waste of time and energy to meet demands that have no place whatever in true development.

REFERENCES

1. *Bowles, Mary E.* Emotions of Deaf Children Compared with Emotions of Hearing Children. *Ped. Sem.*, 3: 330-334; also in *Child Study Mo.*, 1: 213-215.
2. *Calkins, Mary W.* The Emotional Life of Children. *Ped. Sem.*, 3: 319-330; also *The Relation of Feeling to Emotion. Psych. Bulletin*, 5: 340-344.
3. *Cobbe, F. P.* Education of the Emotions. *Fortn.*, 49: 223-236.
4. *Compayre, G.* Intellectual and Moral Development of the Child, pp. 165-188.
5. *Darwin.* Biography of Infant. *Mind.*, 2: 285-294.
6. *Drummond, W. B.* The Child, His Nature and Nurture, pp. 83-86.
7. *Drummond, W. B.* An Introduction to Child Study, pp. 212-217.
8. *Gurney, Edmund.* What Is an Emotion? *Mind.*, 9: 421-426.

9. *Hall, G. Stanley.* A Study of Fears. *Am. Jour. Psych.*, 8: 147-248; Adolescence, 2: 370-373.
10. *Hall, Mrs. W. S.* The First Five Hundred Days of a Child's Life. *Child Study Mo.*, 2: 469-471.
11. *Harrison, Mary M.* Children's Sense of Fear. *Arena*, 16: 960-969.
12. *Holbrook, Agnes S.* Fears in Childhood. (*Studies in Educa.*, Earl Barnes, Vol. 1, pp. 18-21; see also pp. 123, 175.)
13. *Irons, D.* Nature of Emotion. *Philos. Rev.*, 6: 242-256.
14. *Irons, D.* Recent Developments in the Theory of Emotion. *Psych. Rev.*, 2: 279-284.
15. *James, W.* What is an Emotion? *Mind.*, 9: 188-205.
16. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 99-106.
17. *King, Irving.* The Psychology of Child Development, pp. 43-63.
18. *M'Lennan, S. F.* Emotion, Desire and Interest. *Psych. Rev.*, 2: 462-474.
19. *Marwedel, Emma.* Conscious Motherhood, pp. 134-142, 387-401.
20. *Moore, Kathleen.* Mental Development of a Child, pp. 37-41, 89.
21. *Mosso, Angelo.* Fear, pp. 213-225.
22. *Oppenheim, Nathan.* Fear in Babies. *Child Study Mo.*, 2: 32-34.
23. *Patch, Kate Whiting.* The Sensitive Child. *Kind. Rev.*, 17: 416-420.
24. *Payton, C. L.* Feeling as a Factor in School Training. *N. Y. School Journal*, 64: 594-595, 615.
25. *Perez, B.* First Three Years of Childhood, pp. 23-32, 60-66.
26. *Preyer, W.* The Senses and the Will, pp. 140-176; *Infant Mind*, pp. 16-29.
27. *Scott, Colin A.* Study of Children's Fears as Material for Expression and a Basis for Education in Art. *Trans. Ill. Society for Child Study*, 3: 12-17.
28. *Shinn, Milicent W.* The Biography of a Baby, pp. 28-83, 127-136.

29. *Shinn, Milicent W.* Notes on the Development of a Child, 2: 211-298.
30. *Siviter, Anna P.* Fear of Childhood. *Kind. Mag.*, 12: 82-87.
31. *Slack, H. W.* Origin and Development of the Emotional Nature. *Child Study Mo.*, 6: 96-105.
32. *Stanley, H. M.* A Study of Fear as a Primitive Emotion. *Psych. Rev.*, 1: 241-256.
33. *Stryker, Mabel F.* Children's Joys and Sorrows. *Child Study Mo.*, 4: 217-224.
34. *Sully, James.* Studies of Childhood, pp. 191-227.
35. *Suzzalo, Henry.* The Training of the Child's Emotional Life. *Proc. N. E. A.*, 1907, pp. 905-909.
36. *Tanner, Amy E.* The Child, pp. 212-225.
37. *Taylor, A. R.* The Study of the Child, pp. 1-6, 106-111.
38. *Tracy, Fred.* Psychology of Childhood, pp. 38-47; 7th Ed., pp. 38-40, 75-79.
39. *Tyrrell, M. A.* Fear in the Home and the Household. 19th Cent., 63: 447-453, 1908.
40. *Vostrovsky, Clara.* A Study of Children's Superstitions, *Studies in Educa.*, Earl Barnes, 1: 123-143.

CHAPTER XIV

A SUPPLEMENT TO FEELING

AN INTROSPECTIVE STUDY OF FEARS

1. Make a list of all your early fears in order of their vividness, underscore those that seemed most persistent, and whenever possible give the age when the fear was most prominent.

2. Describe some of the symptoms of your most vivid early fears, also the effects. Were they of frequent occurrence?

3. What have you found to be most helpful in dispelling needless fears?

4. What fears still persist in coming up even against your better judgment?

5. Have you discovered any relation between the recurrence of those fears and the state of your health, including fatigue?

A PLAN FOR GATHERING DATA ON CHILDREN'S FEARS

After distributing papers to the class for a written exercise, have each person head the paper with his name, age, grade and school. Then ask all to write as much as they can on the subject which you will indicate on the board. Tell them that you wish to know all the things that people fear. Do not discuss the subject, nor announce it until ready to begin writing. Place the following on the board:

1. Name all the things that you can remember having once feared.

2. What things used to frighten you? Why do you think you were afraid of them?
3. How old were you when you were afraid of these things?
4. What are some of the things you are afraid of now?
5. Can you tell how you feel and act when you are afraid?

A STUDY OF FEAR IN INFANTS

An outline for studying the fears of an individual child. Give the name, age, nationality, height, weight, health and temperament of the child:

1. Make a list of all the things that the child fears.
2. How does the child express his fears by what questions, physical signs, sounds or words?
3. How does he learn to fear harmful objects? Does telling suffice? Is one painful experience sufficient?
4. What unreasonable fears has he? What class of fears seems to be most vivid and persistent? State the origin of his fears, if known.
5. What fears, if any, has the child outgrown? How was this change brought about?
6. Is the child especially afraid of the mysterious and unknown? When were the signs of each fear first noticed? Give examples.
7. When and how did the child first show signs of fear in displeasing those in authority?
8. Do you know any of his fears that are traceable to the suggestions of others? What ones? What of these fears seem traceable to heredity?

Other items may occur to the one making the observation. Do not fail to note them as they may prove helpful.

FACTS OBTAINED FROM A STUDY OF FEARS

The following facts were obtained from collating the answers of 727 students of the University of Nebraska (male 107, female 620) on Fear as given in the Supplement under the head, "Introspective Study of Fears."

Grouping of the more common fears according to the number of times mentioned.

1. Fear of darkness or due to the dark; male 111, female 766.

TIMES MENTIONED

	Male	Female	Total
1. Darkness	77	523	600
2. Catching feet in the dark.....	11	93	104
3. Unusual sounds at night.....	12	44	56
4. Following at night.....	5	33	38
5. Jumping out from dark places.....	3	37	40
6. Eyes in the dark.....	3	9	12
7. Peeping at night.....	..	11	11
8. White spots in dark.....	..	9	9
9. Monster in dark.....	..	7	7
Total.....	111	766	877

2. Fear of animals, total mention; male 141, female 1306.

ANIMALS AND TIMES MENTIONED

	M.	F.	Ttl.		M.	F.	Ttl.
Snakes	44	301	345	Wild animals....	16	102	118
Strange cattle....	2	142	144	Mice	5	100	105
Worms	7	105	112	Bugs	5	51	56
Spiders	5	77	82	Horses .....	..	44	44
Rats	9	37	46	Bees .....	..	30	30
Cats	5	37	42	Sitting hens	2	23	25
Toads	2	23	25	Turkey gobbler..	..	14	14
Domestic animals	9	12	21	Chickens .....	..	14	14
Hogs .....	..	14	14				
Dogs	30	180	210	Total	141	1306	1447

Other animals mentioned fewer times were: Wolves, bears, coyote, caterpillar, cockroach, dragonfly, goats, sheep, geese.

3. Fear of strange or undesirable people, total mention; male 80, female 656.

CLASS AND TIMES MENTIONED

	M.	F.	Ttl.		M.	F.	Ttl.
Burglars	14	110	124	Indians	5	107	112
Tramps	14	84	98	Strangers	16	81	97
Drunken men....	14	72	86	Gypsies .....	..	75	75
Negroes .....	..	63	63	A particular per-			
Policemen	5	12	17	son	5	23	28
Boys .....	..	12	12	Chinamen .....	..	7	7
Blind or deformed							
people	7	10	17	Total	80	656	736

4. Phenomena of nature, total mention: male 103, female 607.

ELEMENTS AND TIMES MENTIONED

	Male	Female	Total
1. Lightning	23	119	142
2. Thunder	26	110	136
3. Storms	14	112	126
4. Water	14	93	107
5. Fire	5	91	96
6. Wind	9	70	79
7. Earthquake	2	12	14
Total	103	607	700

Eclipse, snow, stars, fog, woods, open spaces, rain, rainbow, moonlight, are also mentioned.

5. High places and falling, total mention; male 18, female 114.

	Male	Female	Total
1. Falling	7	56	63
2. High places	9	28	37
3. Crossing bridge	2	30	32
Total	18	114	132

6. Fears of the supernatural, times mentioned; male 75, female 313.

	M.	F.	Ttl.		M.	F.	Ttl.
Ghosts (bogie man)	28	84	112	Deaths	19	82	101
World coming to end	2	40	42	Corpse	5	35	40
Cemetery	14	14	28	Weird stories....	..	21	21
Dreams	5	14	19	Hell	2	9	11
Big eyes .....	..	9	9	Devil .....	..	5	5
				Total	75	313	388

7. Special objects, times mentioned; male 20, female 182.

	M.	F.	Ttl.		M.	F.	Ttl.
Trains	2	47	49	Violence	2	12	14
Gun	7	23	30	Strange places...	2	7	9
Knives	2	16	18	Babies (kittens, chickens, etc.)..	..	7	7
Blood	5	7	12				
Holes .....	..	9	9	Total	20	182	202
Machinery .....	..	33	33				
Shadows .....	..	21	21				

Other things mentioned, principally by the girls, were: Hairless and headless dolls, jails, haunted places, deserted houses, scenic railroad, electric wires, black clothes, fur rugs, feathers.

8. Fear of personal injury, times mentioned: male 33, female 410.

	M.	F.	Ttl.		M.	F.	Ttl.
Being alone at night	21	154	175	Disapproval	2	40	42
Punishment	2	33	35	Accident	2	33	35
Being kidnapped. ..	33	33	66	Losing parents...	2	23	25
Buried alive ....	..	23	23	Stage fright.....	2	21	23
Being poisoned ..	..	14	14	Being lost	2	9	11
Being suffocated. ..	9	9	18	Contagious .....	..	9	9
Doctors and dentists .....	..	9	9				
				Total	33	410	443

Mention is also made of insanity, choking, fever, medicine, going blind, shooting oneself, cancer, being a dwarf, falling under train, falling of plaster, roof, tree, sky.

From the above tabulation it appears that the 107 men gave the expression to 581 particular fears, an average of 5.4, while the 620 women gave expression to 4354 special fears, an average of 7. This indicates that women are more expressive, else more subject to fear, than men. There are other sex differences shown.

Many fears mentioned by women are not found in the papers of the men, while a few of the fears, as cemetery, are given in larger proportion by the men.

SYMPTOMS OF FEAR AS EXPRESSED BY THE SUBJECT

Heart Action

	MORE ACTIVE			LESS ACTIVE	
	M.	F.		M.	F.
Quickened pulse	28	72	Heart stands still.....	..	23
Flushing	9	7	Pale	9	19
Bursting head ..	2	2	Faint feeling .....	..	16
Hot and dry.....	5	5	Chills	26	54
Perspire	2	5			

Respiration

Rapid breathing	5	2	Loss of breath.....	7	56
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Motor Action

Desire to run.....	19	130	Rigid and tense.....	7	103
Desire to cover up....	7	61	Shrinking (sinking)..	..	28
Scream .....	..	63	Can not speak.....	..	12
Sharp looking around. ..	..	12	Starting with fixed		
Extreme nervousness .	..	47	eyes	5	16
Trembling	30	100	Numbness	2	5
Shrug and think rap-			Dizzy and sleepy.....	..	16
idly .....	..	12	Close eyes and ears...	..	9
Creepy feeling	5	5	Shudder	5	..

It is difficult to analyse the symptoms, since they have not always been fully expressed and in many cases omitted altogether. All signs of quickened action, as rapid breathing, flushed face, desire to run,

etc., seem to be grouped; when one is present the others are present also; so with the inactive symptoms. Slight fear increases action but greater fear paralyzes.

Some After Effects of Fear

	M.	F.		M.	F.
Physical exhaustion...	37	111	Fatigue	11	43
Crying spell .....	..	43	Extreme nervousness .	5	26
Depression	11	22	Exciting dreams	6	18
Dazed .....	..	12	Irritable	3	10

The answer to the above question was frequently omitted in the papers tabulated.

Aids in Dispelling Fear

	M.	F.		M.	F.
Reason	62	250	Investigation	16	124
Diverting attention ...	21	135	Faith	3	26
Company	19	73			
Ridicule	2	26	Total	165	753
Force of will.....	42	119			

Conditions that Accentuate Fear

Fatigue	28	254	Ill health	19	154
Nervousness	5	105	Exciting stories	2	16

FEARS THAT STILL PERSIST

(Juniors and Seniors in the University)

	M.	F.		M.	F.
Darkness	40	217	Strangers	2	16
Being alone .....	..	93	Sitting hens	7	9
Burglars	7	65	Tramps	2	14
Storms	5	56	Falling	2	14
Dogs	16	28	Insane men	2	12
Water	5	28	Corpse	5	9
Winds .....	..	28	Accident to family....	..	14
Accident to self.....	2	26	Gun	2	9
Height	2	26	Rats	2	9
Bugs .....	..	26	Death	5	5
Disapproval	2	19	Being buried alive....	..	9

FEARS THAT STILL PERSIST—Continued
(Juniors and Seniors in the University)

	M.	F.		M.	F.
Imaginary monsters...	2	7	Thunder .....	..	16
Snakes	16	131	Horses .....	..	14
Mice	2	72	Cemetery	7	7
Worms .....	..	61	Stage fright	2	12
Lightning	14	47	Crossing bridge .....	..	12
Spiders	2	37	Peeping in window...	2	9
Drunken men	2	30	Wild animals	7	5
Fire .....	..	28	Ghosts	5	5
Strange cattle .....	..	28	Weird sounds	2	7
Following after	2	19	Cats .....	..	9
Catching feet .....	..	19			
Springing upon from			Total	175	1323
the dark	2	16			

Many more fears were given as continuing until the present. These being represented by eight or fewer cases are not given in the above table. About one-third of the earliest fears seem to persist.

AGE WHEN FEAR WAS MOST PROMINENT

Darkness

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..	3	8	14	20	26	34	39	44	48	45	47	37	29	14	11	11	5	2
Male	1	3	6	8	11	15	15	16	17	18	17	15	15	6	6	3	3	..

Storms, Lightning, Thunder

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..	2	6	6	9	12	21	27	36	39	42	50	43	43	41	41	29	26	14
Male ....	..	3	3	6	8	8	8	8	9	9	9	8	8	8	8	6	3	2

Tramps, Indians, Negroes, Gypsies

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..	1	3	5	11	18	38	41	44	42	29	30	14	12	6	5	5	3	3
Male ....	..	..	..	..	..	..	..	1	2	2	4	3	3	3	2	..	..	..

Animals, Snakes, Dogs, Cattle

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..	4	15	18	20	29	48	53	54	60	42	41	36	39	21	18	15	6	5
Male	2	5	5	5	5	5	9	6	6	5	5	2	2	2	1	1	1	1

Ghost, Bogieman, Monster

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..		1	3	9	7	17	15	14	17	14	17	14	12	4	3	1	..	..
Male				1	2	3	2	5	5	5	5	4	6	6	3	2	1	..

Being Alone

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..	3	5	6	8	9	12	12	11	11	9	15	11	9	9	12	11	9	9
Male	1	1	2	2	3	5	3	3	3	3	3	3	6	3	2	1	1	..

Catching Feet

Age	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Female ..					1	2	3	6	8	11	15	9	9	5	4	3	3	1

Many papers failed to give the time when the fears were most pronounced; others gave a period of time extending over several years, as "two to six," "six to ten," "eight to twelve," etc.; while others were quite definite giving the exact year.

CHAPTER XV

FEELING—Continued

(4). **Surprise** and astonishment are closely related to fear; novelty of impression, ignorance, quickness of movement, or suddenly meeting the unexpected being the underlying causes of all three.

Surprise indicates a more active or less intense state than astonishment. The former may occur in the second or third week, the latter probably not much before the sixth month.

What are the motor symptoms of the latter? How do you account for the universality of the expression of the various feelings by different peoples?

OBSERVATIONS INDICATING THE BEGINNING OF SURPRISE AND ASTONISHMENT

1. "Twenty-first day. When gently slapped on the cheek while nursing, she seemed surprised and then puckered up her mouth and cried loudly." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 17.
2. "A little girl of less than a month, on being taken downstairs into new quarters stared around in great wonder for a time, but this soon passed away." Fred Tracy, *Psychology of Childhood*, page 82.
3. "Six to seven weeks. She lay making cheerful little sounds and suddenly by some new combination of the vocal organs, a small high crow came out—doubtless causing a most novel sensation in the little throat, not to speak of the odd sound. The baby fell silent instantly and a ludicrous look of astonishment overspread her face." Millicent Shinn, *The Biography of a Baby*, page 86.

4. "Seventy-third day. She made a large vocal sound, seemed surprised, and then laughed aloud." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 33.
5. "Thus it is recorded that in the tenth week the sound produced by striking a wine glass excited an agreeable wonder." Jas. Sully, *Studies of Childhood*, page 409.
6. Five and a half months. "C. when he first began to notice reflections of the fire and other objects in a mirror showed considerable marks of surprise." Jas. Sully, *Studies of Childhood*, page 406.
7. "At the age of five months and a half, the exclamation 'ah' expressed for the first time his astonishment and his pleasure." Tiedeman, *Record of Infant Life* (Perez Trans), page 27.
8. "Twenty-second week. When the child was in a railway carriage and I suddenly entered after a brief separation, so that at the same moment he saw my face and heard my voice, he fixed his gaze upon me for more than a minute, with **open mouth** (the lower jaw dropped) with **wide-open motionless eyes**, and in other respects absolutely immovable exhibiting the typical image of astonishment." Preyer, *The Mind of the Child*, page 173.
9. "E. G., the child was thus astonished in the thirty-first week at the clapping together of a fan; in the thirty-fourth at an imitation of the voices of animals; in the forty-fourth, at a strange face near; in the fifty-second at a new sound; in the fifty-eighth, at a lantern (after waking). Preyer, *The Mind of the Child*, page 173.

(5). **Curiosity**, one of the important factors in the development of the child, begins as a kind of general hunger for a new sensation, but later becomes a desire to know. It is the desire for change which distinguishes life from death. According to F. Tiedemann, Perez, and others, signs of curiosity appear at the end

of the second or third month while from the sixth month to the sixth or eighth year it forms a great part of the child's life and enjoyment. More attention should be given to a study of the curiosity of children—its beginnings, culmination and decline or inhibition. Is its decline in later years due to nature or environment? Should the genuine curiosity of the child be satisfied by evasive answers or by truth? If truth is presented before the mind is ripe for it, has it a tendency to interfere with development?

INDICATIONS OF CURIOSITY

1. "M. Six weeks. Examined his hands turning his fingers over and over." G. Stanley, Hall, *Aspects of Child Life and Education*, page 88.
2. "F. One month. Stared intently at a patch of sunlight on the wall for several minutes; looked pleased." G. Stanley, Hall, *Aspects of Child Life and Education*, page 88.
3. "At one month and twenty-seven days, the child seemed better able to distinguish his body from other things, for he no longer scratched himself; his curiosity developed, for he follows none but new objects with his eyes (exaggerated); he recognizes the expression of feelings for he considers with greater attention the gestures of the people that are talking to him, and allows himself to become pacified by gentle words." Tiedeman, *Record of Infant Life*, page 15.
4. "F. Two months. Was much interested in a bright red necktie at which she gazed intently following it with her eyes when the wearer moved." G. Stanley Hall, *Aspects of Child Life and Education*, page 90.
5. "Seventy-ninth Day. L. stared at a familiar face and head with an unfamiliar bonnet on with great interest (looking rather at the bonnet!) for a long time." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 39.

6. "Sixty-seventh Day. She looked very interestedly at her own and my reflections in the mirror, gazing intently at them for nearly two minutes." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 28.
7. "M. Three months. Was much interested in watching his own hands." G. Stanley Hall, *Aspects of Child Life and Education*, page 91.

(6). **Anger**, including its many symptoms, may vary in degree from mere displeasure to intense fury. It also varies in its intellectual accompaniments. It is as important to the perfection of human life as are sympathy and love. Some psychologists consider anger the basal emotion, the acme of self-assertion and egoism. G. Stanley Hall, in *Studies in Abnormal Psychology*, 4:83, says: "Children and older human brutes spit, hiss, yell, snarl, bite noses and ears, scratch, gouge out eyes, pull hair, mutilate sex organs, with a violence that sometimes takes on epileptic features and which in number of recorded cases causes sudden death at its acme, from the strain it imposes upon the system." It has doubtless been an important force in human evolution, and may still act as a moral cathartic to extremes of altruism or self-sacrifice. It is not the feeling of anger that is wrong, but the failure to keep this feeling under proper control. The more springs of action properly co-ordinated, the stronger and safer the individual. The danger line is passed when one of the forces becomes the all-controlling influence of the mind. At first it is difficult to distinguish between anger and pain or distress, but by the fourth month the child frequently pushes away distasteful objects and shows signs of real anger. By the end of the first year the child may show anger by striking with his

fists. From this time on the fits of anger increase until reason is sufficiently developed to exert its inhibiting power. What concerns us here, however, is the pedagogy of anger.

1. What is the normal feeling of anger?
2. When insufficient and when excessive?
3. What is the process by which the most healthful conditions may be established?
4. Which exerts the greater curative influence, to give way to anger or to control it?
5. Under what circumstances are you most apt to give way to fits of anger?
6. What is the best treatment of children who are subject to fits of passion?

A careful study of anger and other emotions will be helpful to the teacher.

EARLY INDICATIONS OF ANGER

1. "Angry revolt against the order of things showed itself early in C's case as in that of his sister, the occasion being in each instance a momentary difficulty in seizing the means of appeasing appetite." Third week. James Sully, *Studies of Childhood*, page 407.
2. "Fifty-ninth Day. She showed 'Temper' for the first time by crying when her out-door clothes were put on for her daily ride." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 25.
3. "When about ten weeks old, he was given some rather cold milk and he kept a slight frown on his forehead all the time that he was sucking —." Chas. Darwin, *Mind*, 2:287.
4. "When nearly four months old, and perhaps much earlier, there could be no doubt from the manner in which the blood gushed into his whole face and scalp that he easily got into a violent passion." Chas. Darwin, *Mind*, 2:287.

5. "Fourth month R. —. On the twentieth day, his inability to reach a watch and cluster of tassels which were held over him called forth a fretful cry." D. R. Major, *First Steps in Mental Growth*, page 83.
6. "A small cause sufficed; thus, when a little over seven months old, he screamed with rage because a lemon slipped away and he could not seize it with his hands." Chas. Darwin, *Mind*, 2:287.
7. "297th Day. . . . Mild anger is now shown often by her throwing herself quickly backward." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 117.
8. "One of the earliest signs of anger I ever detected in the baby—a tone of temper in crying—was on occasion of an extra dressing one day, at eleven months old; and thereafter whenever she cried over being dressed, there was the same slight tone of temper." Milicent Shinn, *Notes on the Development of a Child*, page 3.
9. "I have seen a capricious little creature eleven months old put herself in a violent temper because she could not succeed in seizing hold of her grandfather's nose." Perez, *The First Three Years of Childhood*, page 70.
10. "A little boy of fifteen months old used to bite his mother when she put him to bed." Perez, *The First Three Years of Childhood*, page 70.
11. "One of my sons when four and a half years old would get into a veritable rage every time I spoke to him in the patois of my country." Compayre, *The Intellectual and Moral Development of the Child*, page 180.

GROUPS OF QUESTIONS TO BE USED IN THE STUDY OF ANGER

1. Introspective. In your own experience with anger, note and describe:

(a) Vaso motor symptoms, such as flushing or paling, in different parts of the body or face, also

sweating, chilling, choking, tremor, twitching, numbness, etc., accompanying sensations of taste, smell, hearing, etc.

(b) Describe all motor changes or actions.

2. Under what circumstances is there most likely to be a loss of self-control; when alone, with friends, or with strangers?

3. Is this loss of control complete or only partial?

4. Do the feelings of anger culminate quickly or slowly; soon over or long continued?

5. What differences does controlling anger make on its duration?

6. When angry do you feel bolder or more timid, stronger or weaker, more or less active?

7. What is your feeling immediately after a fit of anger, physical, mental and moral?

8. Do you get angry more or less often than formerly?

Observation. Make a careful investigation of all the vaso motor symptoms and motor changes in others during a fit of anger, and have some of your friends describe their feelings in personal cases of anger.

QUESTIONS FOR GATHERING DATA CONCERNING ANGER OF CHILDREN

Remember always to give age, sex, etc. After the usual preparation for a writing exercise and, perhaps a few interesting remarks on the prevalence and frequent justness of anger, and on the necessity of knowing what things make people angry so as to avoid them, write the following questions on the board to be answered by all:

1. What things make you angry?

2. When do you get angry easiest?
3. How do you feel and act when angry?
4. What helps you most to get over it?
5. When you are angry do you feel strong or weak, brave or timid?
6. How do you feel when you get over the anger?
7. Can you talk and work better when you are angry?
8. What do you like to do best when you are really angry?

STUDY OF ANGER

Summary representing the returns of 654 (male 67, female 587) juniors and seniors in the University of Nebraska:

I. Accompanying Symptoms of Anger.

Vaso-motor	M.	F.	Vaso-motor	M.	F.
Flush	35	399	Pale	25	162
Tremble	14	197	Perspire	11	101
Chill	3	70	Numb	7	26
Hands and feet cold..	3	18	Heart pressure	2	15
Dizzy .....	..	17	Kidney disturbance...	2	5
Backache .....	..	..	
			Total	102	1015

Mention was made of tickling sensation of scalp, swelling of the veins of the neck, dryness, bloodshot eyes, pale around the mouth, finger nails aching, loss of breath.

. Modification of the Senses

	M.	F.		M.	F.
Loss of taste.....	8	28	Loss of sight.....	5	11
Ringing in ears.....	5	18	Loss of smell.....	8	5
Keener senses	5	11	Bitter taste	3	5
Keener hearing .....	..	18			
Dilated nostrils .....	..	3	Total	44	114
Loss of hearing.....	10	15			

Motor Impulses and Action

	M.	F.		M.	F.
Choking	13	157	Rigid muscles	13	115
Crying .....	..	80	Loss of speech.....	5	63
Clenched fists	15	48	Grit teeth	3	53
Twitching muscles....	10	38	Flash eyes	5	33
Bite lips	3	13	Compress lips	5	25
Set jaws	3	13	Pace floor	5	11
Talk loud	5	11	Talk rapidly	5	..
Head high .....	..	13	Husky voice	5	5
Fighting attitude	5	..	Impulse to stamp.....	..	38
Impulse to throw.....	3	33	Impulse to strike.....	5	35
Impulse to bang.....	..	18	Impulse to walk .....	..	15
Impulse to fight	9	..	Impulse to tear.....	3	13
Impulse to talk .....	..	8	Impulse to bite finger. ..	..	5
Impulse to kick.....	..	5			
			Total	120	848

2. Under what circumstances is there most likely to be a loss of self-control; when alone, with friends, or with strangers?

	M.	F.		M.	F.
Alone	23	175	With friends	28	375
With strangers	6	17			
			Total	57	567

3. Is the loss of control complete or only partial?

	M.	F.
Complete	8	75
Partial	58	480
Total	66	555

Of the eighty-three persons mentioning complete loss of control, forty-eight state there "is sometimes complete loss of control."

4. Do the feelings of anger culminate quickly or slowly; soon over or long continued?

	M.	F.		M.	F.
Culmination quick	40	270	Culmination slow	33	172
Duration short	40	361	Duration long	28	186

Usually quick culmination goes with short duration and vice versa. Most people fall naturally under one or the other type, being always either quick or slow. Many other persons, however, state that they find in themselves both types; now one, now the other, depending somewhat upon the cause of anger and the surrounding circumstances.

5. What differences does controlling anger make on its duration?

	M.	F.
Anger continues longer when suppressed.....	30	313
The duration of anger is shorter when suppressed.....	30	188

Many express the feeling that the suppression or holding in check of anger tends to arouse the feeling of revenge or desire to get even. Others believe that the only true way to overcome the too frequent tendency to give way to fits of passion is to completely control or suppress all expression of anger; holding further that such action tends to sweeten rather than sour the disposition.

6. When angry do you feel bolder or more timid, stronger or weaker, more or less active?

	M.	F.		M.	F.
Bold	65	486	Timid .....	..	38
Strong	58	447	Weak	5	75
Active	53	325	Inactive	8	65

7. What is your feeling immediately after a fit of anger; physical, mental, moral?

	M.	F.		M.	F.
Physically weak	58	417	Headaches .....	..	33
Mentally confused	33	100	Mentally alert .....	..	23
Morally ashamed	48	462	Morally stronger	8	20

Terms classified under "Morally ashamed" were: guilty, foolish, blue, sorry, dejected, remorse, forgiving, sheepish, mean, repentant, depraved, depressed, humiliated, degenerate, blamed self.

Terms classified under "Mentally confused" were: lack of concentration, tired, disturbed, inaccurate, agitated, not clear, lacked control, confused, indolent, unbalanced, can not think, reckless, dull.

8. Do you get angry more or less often than formerly?

	M.	F.		M.	F.
Less often	65	470	More often	3	48

Do the answers to question 8 indicate a growing healthier state of humanity? Are the provocations to anger of university students equal to those of persons in other walks of life? Should increasing civilization tend to decrease the feeling of anger?

THE BEST TREATMENT OF CHILDREN SUBJECT TO FITS OF PASSION

Of the many letters in answer to the above question, one from Miss Aurette S. Aldrich has special merit, and is here given that it may aid others: "I had the care of a boy of four years. His parents were Americans. The father was a lawyer of education and refinement, but selfish and a hypochondriac; the mother was young and inexperienced but exceedingly conscientious.

"From his babyhood the boy had fits of crying. Nothing ever stopped these till he was exhausted and fell asleep, though the mother did everything possible to turn his attention or induce him to stop. His health and disposition seemed to suffer from these attacks.

"At the age of four he came to me. I tried to fill his little life so full of happy occupations and keep his body so well that he would not have these attacks. But after a few weeks something displeased him and he began to cry. He began by shutting his eyes and opening his mouth, and the cry was an incessant monotonous noise with absolutely no variation except what was necessitated by breathing. His hands hung limp. His shoulders dropped and his head settled upon or into his shoulders, and the whole attitude was one of extreme sagging.

"I tried to arouse interest in something or to get him to speak to me, with no response. When I saw that one of his spells was inevitable, I told him I was sorry that he felt too bad to open his eyes or speak to me, and that I would bathe his head and face with cool water which I hoped would relieve him. He would not stir one step and his face was as immobile as if it were wood or clay. So I lifted him in my arms and took him to a bowl of water and with a cloth bathed his head and face freely. For an instant there was no change but then he angrily screamed, 'That's enough.' I said, 'Are you relieved enough to open your eyes and speak to me?' There was no reply whatever but the same stolid face and monotonous cry. I applied the water freely again, and again he screamed, 'That's enough.' I repeated my question and he screamed, 'Yes,' very angrily, but did not

open his eyes. I bathed his face the third time, saying with perfect quiet that I knew the water would relieve him so that he would be able to stop crying and to speak to me in his usual tone.

“My manner, which was the expression in perfectly good faith, of my conviction and my entire sympathy with him, more than my words, which were few and quiet, made him confident that he could stop crying and also that I would bathe his face until he did stop. When he fully understood this he did stop. I took him in my arms to the nursery, undressed him, rubbed his body and put him in bed, at the same time telling him a pleasant story or singing to him until he fell asleep. He awoke placid and bright and never again had another attack. Twice afterward when he was displeased he began to settle his head into his shoulders in that peculiar way and his arms hung heavily, but I sprang to take him in my arms, explaining to him that I would bathe his face before his eyes became shut too tight, and he immediately came to himself. His health and temper improved from that time.

“I give this in detail because such a large proportion of children’s faults are from some inheritance allowed to develop, or some habit acquired before consciousness or responsibility began; and could be overcome if we could be **intelligently** firm and sympathetic.”

CHAPTER XVI

FEELING—Concluded

7. **Aesthetic Feelings.** We are compelled in this part of the course to give only a passing word to the beginnings of aesthetic feelings. We shall have occasion, however, to return to these feelings later on. The child gives expression to pain or discomfort from the first, but it is not until two or three months old that it gives genuine expressions of pleasure. The first smiles are generally reserved for the mother or nurse. Here, no doubt, along with the visual image are mingled the former impressions of satisfaction through nourishment. The child early shows an appreciation of bright objects, and within the first two years shows considerable attraction for flowers, etc.

Music is also early responded to by the child with expressions of joy or pleasure. After a few months, the child is apt to show distinct signs of joy at all musical sounds. What other aesthetic feelings are shown in the child? What feelings of pleasure seem to be the beginning of the aesthetic feelings?

8. **Affection.** From an outburst of anger the child may surprise us in the next moment with genuine expressions of tenderness. The emotions of children may be intense, but they lack depth and persistence. The new-born begins to recognize and show affection for those in charge of him by the fourth month and by the eighth month other persons may receive a share of this affection; while by the middle of the second year, or earlier, even animals and inanimate

objects may share in this bestowal of tenderness. This early love is flattering to the parents, but it is also an exceedingly important factor in the education of the child, and must be clearly understood and carefully respected by everyone who would be a trainer of children and youth. It indicates a higher order of intelligence to rule by love than by fear.

9. **Sympathy.** Which rises out of the instinct for companionship and rests on the community of experience, is closely associated with love. Some observers have noticed signs of sympathy as early as the third to the sixth month, though the cases of sympathy before the first year are not very marked. Jealousy begins to show itself clearly after the first six or eight months and forms a large part of the child's early life. Why is it important to understand the feelings of jealousy in children? An outline for study will be given in class.

EARLIEST INDICATIONS OF PLEASURE

1. "By the nineteenth day the sound of the voice was distinctly associated with pleasant experiences, so that he smiled when addressed." Kathleen Moore, *Mental Development of a Child*, page 67.
2. "The first smile that I could conscientiously record occurred the day before the baby was a month old, and it was provoked by the touch of a finger on her lip; and a day or two later she smiled repeatedly at touches on her lip." Millicent Shinn, *The Biography of a Baby*, page 73.
3. "Audible and visible laughing which appeared first on the twenty-third day, is simply an advanced stage of this expression pleasure, in which 'the eyes laugh.'" Preyer, *The Mind of the Child*, page 32.

4. "This infant smiled when 45 days, a second infant when 46 days old; and these were true smiles, indicative of pleasure, for their eyes brightened and eyelids slightly closed." Chas. Darwin, *Mind*, 2:288.
5. "Forty-sixth Day—Laughed aloud upon several occasions (at persons)." Kathleen Moore, *Mental Development of a Child*, page 37.
6. "Fifty-seventh Day. . . . She laughed a good deal at the sight of her mother's face and at her voice; the open mouth was the conspicuous feature of the smiles." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 22.
7. "Third month. . . . The sensations which because more and more strong and vivid strengthen the feelings; we perceive for the first time a strong emotion of pleasure; heretofore a smile had been the sign of contentment, now it is replaced by a pronounced laugh." F. Tiedeman, *Record of Infant Life*, page 16.
8. "When 110 days old he was exceedingly amused by a pinafore being thrown over his face and then suddenly withdrawn; and so he was when I suddenly uncovered my own face and approached his." Chas. Darwin, *Mind*, 2:298.
9. "The first real laughing sound was heard on the twenty-third day of the fourth month." D. R. Major, *First Steps in Mental Growth*, page 79.
10. "It was rather a laugh than a smile that surprised me on the 116th day, where as even on the 113th the image in the mirror was regarded with a fixed and attentive look, to be sure, but without any sign of satisfaction." Preyer, *The Mind of the Child*, page 297.
11. "Sigismund's boy, in his sixth month, expressed pleasure by a peculiar crowing shout, accompanied by kicking and prancing." F. Tracy, *Am. Jour. of Psych.*, 6:113.

MUSIC

1. "Fifteenth Day. She was pleased and quieted by the sound of a soft whistling." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 14.
2. Twenty-sixth Day. "But the next day, at the sound of chords, strongly struck, she hushed when fretting with hunger, and listened quietly for five minutes her first pleasant exercise through the sense of hearing." Milicent Shinn, *The Biography of a Baby*, page 72.
3. "Tiedeman's son heard the piano played for the first time when he was forty days old, and he is said to have shown singular delight and excitement at the sound." Perez., *The First Three Years of Childhood*, page 42.
4. "In the sixth week the child laughed in response to his mother's crooning." Winifred Hall, *The Child Study Monthly*, 2: 466.
5. "When four months old, he showed in an unmistakable manner that he liked to hear the piano-forte played; so that here apparently was the earliest sign of an aesthetic feeling, unless the attraction of bright colors, which was exhibited much earlier, may be so considered." Chas. Darwin, *Mind*, 2: 289.
6. "A little girl in her eleventh month takes pleasure in hearing music. When one begins to sing she springs and accompanies the singing with movements of her body." Oscar Chrisman, *Ped. Sem.*, 2: 403.

AFFECTION

1. "When nearly five months old, he plainly showed his wish to go to his nurse." Chas Darwin, *Mind*, 2: 289.
2. Five months, two weeks. "Once she leaned out of her baby carriage, calling and reaching to me, as if she wished to be taken; but when I came

- to her she wanted only to get hold of me to put her hands and mouth softly on my face." Millicent Shinn, *The Biography of a Baby*, page 172.
3. "126th Day. . . . She seems to take great and real interest in her mother and to love to watch her face." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 58.
 4. "Excepting the smile accompanied by rapid arm and leg motions, which denoted his pleasure in seeing the members of the family, no especial sign of affection was shown until the thirty-first week when the child first looked into his mother's face with an indescribable look of love." Winifred Hall, *Child Study Monthly*, 2: 471.
 5. "228th Day. Two weeks after this first expression he showed his love for his father by extending both arms toward him as he approached after a two weeks' absence." Winifred Hall, *Child Study Monthly*, 2: 471.
 6. "315th Day. . . . For the first time in her life she today had hold of a little girl about her own age, and it was surprising to see how delightfully she hugged her and how emphatic were the signs of instinctive 'natural' affection for even an entirely strange little girl; she certainly filled a long-felt want." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 119.
 7. "In the forty-seventh week he was asked, 'Where is mother?' and for answer drew his mother's face down to his and with a prolonged 'ah' he laid his mouth again and again upon hers." Winifred Hall, *Child Study Monthly*, 2: 471.
 8. "A child of twelve months who came back to his father's house after a month's absence, took no notice of the purrings and caresses with which his old friend the cat welcomed him home. . . . Scarcely, however, did he catch sight of the faithful old servant before even she had called him by his name—than he, held out his arms to her,

- starting and jumping with delight." Perez, *The First Three Years of Childhood*, page 76.
9. "But he did not spontaneously exhibit affection by overt acts until a little above a year old, namely by kissing several times his nurse who had been absent for a short time."
 10. "375th Day. . . . She offered 'Johnnie B.' all her favorite toys." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 134.
 11. Fourteen and a half months. "He has had a great fashion lately of kissing me at odd moments, often on each eye successively, especially when I am lying down face upward." Louise Hogan, *The Study of a Child*, page 27.
 12. "When two years and three months old, he gave his last bit of ginger-bread to his little sister, and then cried out with high self-approbation, 'Oh kind Doddy, kind Doddy.'" Chas. Darwin, *Mind*, 2:291.

INDICATIONS OF SYMPATHY

1. "My child H. cried out, when I pinched a bottle cork in her fifth month, and wept in her twenty-second week at the sight of a picture of a man sitting weeping, with bowed head in his hands and his feet held fast in stocks." James Baldwin, *Mental Development of the Child*, page 316.
2. "With respect to the allied feeling of sympathy, this was clearly shown at six months and eleven days by his melancholy face with the corners of his mouth well depressed when his nurse pretended to cry." Chas. Darwin, *Mind*, 2:289.
3. "The first advance to signs of a truer fellow feeling was made when the child was six years and a half old. His father pretended to cry. Thereupon C. bent his head down so that his chin touched his breast and began to paw his father's face, very

- much after the manner of a dog in a fit of tenderness." Jas. Sully, *Studies in Childhood*, page 408.
4. "231st day. A cry from the mother caused by the child's vigorous use of his teeth was followed by a grieved cry from the child. The same proceeding was repeated later." Winifred Hall, *Child Study Monthly*, 2:472.
 5. "Eighth month. . . . and adds 'he cried when he was made to believe that his mother or nurse was being whipped.'" F. Tiedeman, *Record of Infant Life*, page 28.
 6. "307th day. One day when the mother imitated a crying street sound, supposing the child had heard it, he cried as tho he thot his mother was hurt." Winifred Hall, *Child Study Monthly*, 2:472.
 7. "473rd day. While at the park he saw a boy push a dog into the pond. As the dog went in he gave a quick cry of exclamation, but when it came out dripping wet his face became puckered with pity for the dog." Winifred Hall, *Child Study Monthly*, 2:473.
 8. "497th day. . . . Gentleness and tenderness seem her most prominent emotional characteristics at present—the notion of 'Little Tommy Green' putting pussy in the well makes her invariably cry." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 163.

INDICATIONS OF JEALOUSY

1. Three and a half months. "If her elder sister is placed beside her on her mother's lap, and the mother kisses the sister, quite a tragic scene ensues; for a few seconds she remains still with her eyes fixed, then her mouth begins to twitch, her eyes fill with tears." Perez, *First Three Years of Childhood*, page 29.
2. "On the fifth day of the eighth month Tiedeman notes that the association of ideas was constantly

increasing, and that it gave rise to complex sensations and desires." In proof of this he mentions the fit of anger of his son when he saw another child placed, for a joke, on his mother's lap, and the efforts of the jealous child to draw the other away." F. Tiedeman. *Record of Infant Life*, page 29.

3. "A child of fifteen months was evidently jealous if sugar or dessert was given to its nurse." Perez, *First Three Years of Childhood*, page 71.
4. "In the forty-first week he showed a decided preference for his mother over other people. In the forty-eighth week he began to regard her as exclusively his and resented attention shown her by anyone else." Kathleen Moore, *Mental Development of a Child*, page 99.
5. "A child of fifteen months used to enact very curious little scenes out of jealousy. If his father and mother kissed each other in his presence, he would run up and try to separate them, scolding and pushing away his father, who was by no means the favorite." Perez, *First Three Years of Childhood*, page 11.
6. "Jealousy was plainly exhibited when I fondled a large doll, and when I weighed his infant sister, he being then fifteen and a half months old." Chas. Darwin, *Mind*, 2:289.
7. "Twenty-second month. . . , Jealousy and vanity developed more and more; when his little sister was being caressed, he came to be caressed also. He tried to take away from her what was given to her and even tried to strike her by stealth." F. Tiedeman, *Record of Infant Life*, page 38.

AN OUTLINE FOR STUDY

Observe and describe any cases of affinity or antipathy of children toward other children, or individuals of the same, or of opposite sex. How do these likes

and dislikes manifest themselves and what is their effect on both parties?

Describe cases of mutual attraction or repulsion among children before the dawn of adolescence. Also similar cases after adolescence. Upon what does this mutual feeling seem to rest? What are the circumstances under which children are most prone to give and to receive this affection? Is this attraction helpful or otherwise?

Examine introspectively your own experience in regard to these questions. Of what value is this knowledge to the parent and teacher?

The following questions are taken from one of Dr. Hall's syllabi for child study (April, 1895):

"Will you describe from your own memory, candidly and fully, but if you wish with any suppression of names or details, always stating age, sex and nationality, the dawn and progress of the first attachment felt toward a person of the opposite sex, stating fully what you did, felt, feared, how it affected your studies, conduct, relation to other friends, whether the person loved was older, younger, like or unlike you in temperament, disposition, tastes, culture? What particular act, feature or trait, if any, had chief charm for you? Whether your attachment was known and returned and by what tokens: any rivalries, jealousies, etc. Describe all plainly and objectively, without extravagancies or indulgence in current poetry or romance, and state how, from adult years, you look back upon this first experience of affection."

I am collecting the answers to this study and would be pleased to have the reader add to the value of the study by furnishing me with additional answers.

AFFECTION

Summary of a study of 448 University students (73 male, 375 female):

I. Age of the first attachment felt toward a person of the opposite sex.

	Ages	1	2	3	4	5	6	7	8	9	10	11	
Female					3	8	15	13	33	30	40	33	
Male								3	4	3	12	11	

	Ages	12	13	14	15	16	17	18	19	20	21	Total
Female	47	38	37	18	20	10	5	5	2	..—		357
Male	10	12	4	3	4	1	2	1	2	..—		73

II. How it affected them.

(a) Open affection	Male	Female
Walked with him (her).....	18	60
Partners in games.....	25	55
Watched him .....	..	34
Did things to please him (her).....	15	18
Competed for her.....	13	..
Giggled .....	..	10
Showed off .....	..	8
Laughed louder .....	..	5
Cancelled names .....	..	8
Talked of him.....	..	5
Teased her	5	..
Solved her difficulties.....	6	..

(b) Hidden affection		
Day dreams	18	58
Concealed attachment	10	14
Stayed away from him.....	..	13
Listened for news of him.....	..	11
Sought his society only when with others.....	..	5

III. How they felt.

	M.	F.		M.	F.
Self-conscious .....	..	43	Superior to other girls ..	28	
Happier	11	18	Embarrassed	23	
Loved to be with him. ..	10		Could never love any-		
Nervous .....	..	8	one else	8	
Wanted the feeling re-			Guilty	7	
turned .....	..	5	Bolder and freer.....	5	
Uneasy pleasure .....	..	4	Liked to be teased....	3	
Despondent .....	..	3	Liked to confide secret		
			to girl friends.....	3	

IV. What they feared.

	M.	F.		M.	F.
That he would know			Interference of parents ..	20	
how much she cared ..	23		That he would not re-		
Being teased	8	17	turn affection	11	
That nothing would					
prevent them from					
being together .....	..	3			

V. How it affected their studies.

	M.	F.		M.	F.
Work deteriorated....	35	85	Work became better..	16	82
No effect	2	64			

VI. The effect on conduct.

	Male	Female
More careful of dress and appearance.....	11	39
Changed general conduct for the better.....	37	13
Changed general conduct for the worse.....	3	25

VII. Relation to other friends.

	M.	F.		M.	F.
Lacked interest in			Kinder and nicer to		
friends	19	53	friends	11	16

VIII. Age differences of the parties in cases of first attachment.

	M.	F.	The affinity was younger	M.	F.
The affinity was older.	28	233	er	35	30
The affinity of the					
same age	10	53	Cases reported.....	73	316

	Male	Female
The affinity one year older.....	3	55
The affinity three years older.....	..	23
Affinity five years older.....	..	10
Affinity seven years older.....	..	8
Affinity nine years older.....	..	5
Affinity eleven years older.....	..	3
Affinity eighteen years older.....	..	2
Affinity two years younger.....	15	..
The affinity two years older.....	5	40
Affinity four years older.....	2	5
Affinity six years older.....	..	7
Affinity eight years older.....	3	8
Affinity ten years older.....	2	10
Affinity twelve years older.....	..	3
Affinity one year younger.....	5	8
Affinity three years younger.....	3	3

Number of cases reported..... 38 182

IX. Was the person loved like or unlike you in temperament, disposition, tastes, culture?

	M.	F.	Unlike in temperament	31	120
Like in temperament..	20	68	Unlike in disposition..	23	93
Like in disposition....	15	75	Unlike in tastes.....	16	42
Like in tastes.....	29	116	Unlike in culture.....	24	84
Like in culture.....	21	74		—	—
	—	—	Total unlike qualities	94	339
Total like qualities...	85	333			

It will be noted that the unlike qualities prevail in all cases except that of tastes where the reverse is

true. It is difficult to account for the fact that culture does not combine with tastes in bringing to the fore like qualities in these cases of early attachment. May it be due to a misinterpretation of culture for veneer?

X. Charms that attracted.

	M.	F.		M.	F.
Physical features	49	141	Personal traits.....	..	135
(a) Handsome ..	11	63	(a) Geniality	45	
(b) Eyes .....	..	34	(b) Sympathetic nature	40	
(c) Smile	11	8	(c) Gentlemanly manners	50	
(d) Hair	11	5	(The forms of expression from which these traits were grouped were quite variant, but are quite fairly represented in a, b and c.)		
(e) Voice	6	8			
(f) Face	5	5			
(g) Carriage ..	5	5			
(h) Complexion..	10				
(i) Bigness of body	3				
	M.	F.		M.	F.
Physical prowess.....	8	26	Mental ability .....	..	48
(a) Strength	15		(a) Witty	18	
(b) Daring	3	3	(b) Brilliant	28	
(c) Vivacious ..	5	..	(c) Good reciter	2	
(d) Protection	5				
	M.	F.		M.	F.
Ideas .....	..	33	Miscellaneous, particular charms and traits hard to classify	3	38
(a) Good	12				
(b) Religious	7				
(c) Sober	6				
(d) Silent	5				
(e) Musical	3				

XI. Was the attachment known and returned?

	M.	F.		M.	F.
Known	47	142	Unknown	9	19
Returned	47	157	Not returned	9	37

XII. Overt acts or tokens of attachment.

	M. F.		M. F.
Rivalries	62 145	Exchanges	40 213
(a) Jealousies ..48 III		(a) Gifts .....18 109	
(b) Fighting for.14 13		(b) Notes .....19 83	
(c) Rivals 21		(c) Caresses 3 16	
		(d) Winks 3	
		(e) Rings 2	

Other studies of a similar nature can be added in class provided the time of the course will permit.

REFERENCES

1. *Baldwin, J. M.* Mental Development, pp. 216-331.
2. *Baldwin, J. M.* Bashfulness in Children. *Educa. Rev.*, 8: 433-441.
3. *Barnes, Earl.* Feelings and Ideas of Sex in Children. *Ped. Sem.*, 2: 199-203.
4. *Barnes, Earl.* Studies in Education. Vol. 1, pp. 24-26, 266-269.
5. *Bradley, F. H.* Sympathy and Interest. *Mind*, 8: 573-575.
6. *Burk, Frederick.* Teasing and Bullying. *Ped. Sem.*, 4: 336-371.
7. *Calkins, Mary W.* An Attempted Experiment in Psychological Aesthetics. *Psych. Rev.*, 7: 580-591.
8. *Clapp, H. L.* Educational Value of Children's Questioning. *Pop. Sci. Mo.*, 49: 799-810.
9. *Compayre, G.* Intellectual and Moral Development of the Child, pp. 188-208.
10. *Darwin, Chas.* Expressions of Emotion in Man and Animals, pp. 239-309.
11. *Dearborn, G. V. N.* The Nature of the Smile and Laugh. *Science*, n. s., 11: 851-856.
12. *Drummond, W. B.* The Child, His Nature and Nurture, pp. 58, 86-92.
13. *Hall, G. Stanley.* Adolescence. (See Index, Vol. II.)
14. *Hall, W. S.* The First Five Hundred Days of a Child's Life. *Child Study Mo.*, 2: 471-473.

15. *King, Irving.* The Psychology of Child Development, pp. 64-70.
16. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 105, 118-125, 209-212, 214-218.
17. *Marwedel, Emma.* Conscious Motherhood, pp. 142-157.
18. *Patch, Kate Whiting.* The Sensitive Child. Kind. Rev., 17: 416-420.
19. *Perez, B.* First Three Years of Childhood, pp. 66-86, 263-279.
20. *Preyer, W.* Infant Mind, pp. 16-29.
21. *Preyer, W.* Senses and Will, pp. 140-176.
22. *Scott, C. A.* Children's Fears as Material for Expression and a Basis for Education in Art. Trans. Illinois Soc. for Child Study, 3: 12-17.
23. *Shinn, Milicent.* Biography of a Baby, pp. 78-83.
24. *Skinner, W. H.* Aesthetics of Children. Series of articles in Northwestern Journal of Education for the Years 1895-7, 7: 71, 102, 135, 160, 224, 248, 277, 337.
25. *Stryker, Mabel F.* Children's Joys and Sorrows. Child Study Mo., 4: 217-224.
26. *Sully, Jas.* Studies of Childhood, pp. 408-411.
27. *Suzzalo, Henry.* Training of the Child's Emotional Life. Proc. N. E. A., 1907, pp. 905-909.
28. *Tanner, Amy E.* The Child, pp. 225-228.
29. *Taylor, A. R.* The Study of the Child, pp. 111-114.
30. *Tracy, Frederick.* Psychology of Childhood, pp. 43-59; 7th Ed., pp. 79-92, 166.
31. *Westermarck, Edward.* The Essence of Revenge. Mind, n. s., 8: 289-310.

CHAPTERS XVII AND XVIII

KNOWING

I. **Intellect.** Writers differ regarding the place to be assigned to the intellect of the new born. Some give first prominence to the mental activities, while others believe that those activities play but a small part during the first years of childhood. The difference of opinion arises no doubt from the difficulty of distinguishing between intellectual activities and mere reflexes. The brain is furnished with impressions before birth, traces of which remain, forming the beginning of memory.

What are the fundamental stages of the intellect?

What are the earliest indications of intellect in the child?

II. **Perception.** The process of perception includes three stages: 1st, a discrimination of the sense impressions; 2nd, a localization of the sensation in space and the referring of it to some point in time; 3rd, a combination of these scattered sensations into an idea of the object producing them. The different stages may often occur simultaneously and in many perceptions only the last one seems to have been present.

Taste is generally conceded to be the first sense from which the child obtains definite perceptions. As before stated, the child seems to be able to distinguish between sweet and bitter on the first day, and before the end of the first year many articles of diet are clearly known and recognized.

In reference to sight and hearing, the sense precepts are by no means pronounced at first, but by the end of the first week some signs of the early stages of perception may be seen. Among the first objects recognized by the child is the mother's face. This occurs about the third month. The child has but little idea of distance before the end of the sixth month, and most of this knowledge is obtained through touch and the muscular sense. He is able to distinguish between sounds and locate their direction after two or three months. Touch plays an important part in the early perceptions; but the sense of smell, while reacting to strong odors from the first, does not seem to enter largely into the child's early education.

What are some of the earlier sense perceptions and the educational importance of the senses?

III. Memory. The term memory is used to include retention and reproduction. All experiences may leave permanent traces in the central nervous system, but only a few of these are subject to recall.

1. Make a list of the things you can remember before five.

2. Describe the earliest event of your life that you can recall.

3. Is the memory due to the vividness of the event or to statements made by older persons?

4. Signs of early memories?

5. Age when memory is most tenacious. Sense furnishing the most lasting memory. How can we strengthen memory?

IV. Association has its physiological foundations in the distributive groups of nerve cells and their con-

nective paths. Man's superiority over animals is shown principally in this group which at birth is least developed,—association being at a minimum. Probably two-thirds of the gray matter of the brain belongs to this group and has no direct connection with the external muscles and sense organs. The function of this group of nerve cells is to serve the higher intelligence, judgment, reason, aesthetics, ethics, and constructive thinking.

After the first six months the child begins to show distinct signs of association, even earlier indications of association have been reported by some observers. The law of association may be reduced to two principles—contiguity in space and time and similarity—the former being much more prominent in the early associations of children and generally more lasting. Some of the cases reported by Tracy as due to similarity can better be explained in another way.

What are some of the first indications of association by contiguity? By similarity? Does the order of the development of these two laws of association indicate their relative importance, (a) to the individual? (b) to the race? What tests can be made to show which form of association children use at different ages?

THE BEGINNING OF INTELLIGENCE

1. "Eight weeks old. She stopped in the middle of nursing to throw her head back and gaze at the bow at her mother's neck and would not go on with the comparatively uninteresting business of food till the bow was put out of sight." Milicent Shinn, *The Biography of a Baby*, page 95.

2. "Mary at the age of three and a half months, can already distinguish several parts of her body. When her mother says to her 'Where are your feet?' she directs her eyes to the feet."
3. "At the age of four months the baby showed by certain signs that he recognized and distinguished between people." Charles Darwin, quoted by Compayre in *The Intellectual and Moral Development of the Child*, 1:123.
4. "When four and a half months old, he repeatedly smiled at my image and his own in a mirror and no doubt mistook them for real objects; but he showed sense in being evidently surprised at my voice coming from behind him." Chas. Darwin, *Mind*, 2:289.
5. "Five months. In the second week of the month she began to watch things as they fell, and then throw them down purposely, to watch them falling." Milicent Shinn, *The Biography of a Baby*, page 166.
6. "The fiftieth week he tried to pick large letters off the paper on which they were printed, but a little later seemed rather suddenly to understand pictures." G. Stanley Hall, *Ped. Sem.* 1:130.
7. "Seventy-seventh week. He called the photograph of a baby, baby, any man, papa, any woman, girl." Kathleen Moore, *Mental Development of a Child*, page 112.

SIGNS OF INTELLIGENCE—ASSOCIATION

1. "At seven weeks old she opened her mouth for the nipple on being laid in the proper position." Milicent Shinn, *The Biography of a Baby*, page 84.
2. "Sixty-first day. The day before the child had looked upon the friendly face of his mother for some minutes and then gave a cry of joy." Preyer, *The Mind of the Child*, page 46.

3. "Romanes adds that in the case of his own child he found that the faculty of associating ideas grew stronger during the ninth week, as soon as her bib was put on—an action that always preceded that of giving her the bottle—she stopped crying for her bottle." Compayre, *The Intellectual and Moral Development of the Child*, 1:292.
4. "Last week of the third month. In the same week the child recognized his nursing bottle. Whenever it was held over him he uttered little fretful, half laughing cries until it was given to him." D. R. Major, *First Steps in Mental Growth*, page 190.
5. "Fourth month. While seated on his nurse's lap, the child, whenever he sees anyone drink, turned toward the breast, even when it was covered, and made a movement with his mouth as if he were tasting something." Tiedeman, *Record of Infant Life*, page 18.
6. "115th Day. She recognizes her name instantly, and when nursing sometimes stops, turns 'round her head and bursts into passionate tears when called by her name; it seems to be a 'reflex' already, this head turning when she hears her name." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 52.
7. "When five months old, associated ideas arising independently of any instruction, became fixed in his mind; thus as soon as his hat and cloak were put on he was very cross if he was not immediately taken out of doors." Chas. Darwin, *Mind*, 2:290.
8. "148th Day. L. evidently associates a person's hand with the face of that person, for today when hands were offered her from behind, she immediately looked up to see whose they were." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 68.

9. "Six months, three weeks. To test it I stood behind her and in an ordinary tone accosted her as Bobby, Tom, Kitten, Mary, Jacob, Baby, and all sorts of other names. Whenever I said Ruth, Toodles or Toots she turned and looked expectantly at me but not at any other name." Milicent Shinn, *The Biography of a Baby*, page 176.
10. "When exactly seven months old, he made the great step of associating his nurse with her name, so that if I called it out he would look round for her." Chas. Darwin, *Mind*, 2:290.
11. "When a few days over 9 months he learnt spontaneously that a hand or other object causing a shadow to fall on the wall in front of him was to be looked for behind." Chas. Darwin, *Mind*, 2:290.
12. "Fourteen and one-half months. One day this week, while in his coach on the street, coming home, he began to throw kisses just before falling asleep." Louise Hogan, *The Study of a Child*, page 19.
13. "Thus in his eighteenth month C. took to applying the name 'bow wow' to objects, such as fragments of bread or biscuit as well as drawings having something of a triangular form with a sharp angle at the apex." Jas. Sully, *Studies in Childhood*, page 423.
14. "Nineteen months. On March 7, 1903, while sitting in her father's lap at the window, looking up at the sky, she discovered the new moon, which interested her very much. The evening of the same day she called the half of a biscuit in her hand 'moor,' i. e., moon." Arthur and I. C. Chamberlain, *Ped. Sem.*, 11:265.

OBSERVATIONS ON MEMORY

1. "Fifty-third day. By the eighth week he had come to know that the placing of a napkin under his chin was always followed by food, for

- he closed his eyes and opened his mouth." Winifred Hall, *Child Study Monthly*, 2:524.
2. "130th day. Today there was the first direct evidence of the presence of a visual memory-image in her mind. She was near a lamp and looking at it with delight, but was then turned away so that her back was toward the light; she twice turned her head around as far as it would go both ways to see the light again." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 61.
 3. "148th day. The child recognized both his father and aunt after an absence of five days, but subsequently did not at once recognize his father after an absence of twenty days." Winifred Hall, *Child Study Monthly*, 2:524.
 4. "A little boy, six months old, whose hand had been slightly burnt by a hot vase, shrank back at the sight of the article a few days after." Fred Tracy, *The Psychology of Childhood*, page 48.
 5. "At six months Emile was slightly burned by touching a warm dish with his hand, when it is presented to him again he draws his hand back with an evident intention to escape pain." Ibid page 10, Compayre, *The Intellectual and Moral Development of a Child*, 1:224.
 6. "Sigismund gives an interesting case of memory in a boy about eight months old. While in the bath he tried repeatedly to raise himself up by the edge of the tub, but in vain. Finally he succeeded by grasping a handle, near which he accidentally fell. Next time he was put into the bath, he reached out immediately for the aforesaid handle and raised himself up in triumph." Fred Tracy, *The Psychology of Childhood*, page 48.
 7. "Twelfth month. In the second week of the month her uncle showed her how he lifted the window sash, and four days after, catching

- sight of the finger handle, she tugged at it with impatient cries, trying to make the sash go up." Milicent Shinn, *The Biography of a Baby*, page 244.
8. "Hence it is worthy of note that a girl in her twelfth month recognized her nurse after six days' absence, immediately 'with sobs of joy,' as the mother reports (Frau Von Strümpell), another recognized her father after a separation of four days even in the tenth month (Lindner). Preyer, *The Development of the Intellect*, page 7.
 9. "The child J. in his twelfth month, remembered after an interval of two days that a marble was to be put in a tin can, and that the can was then to be shaken; that a can lid goes on a can; that blocks were to be set on his head; and that they were to be piled on top of another." D. R. Major, *First Steps in Mental Growth*, page 132.

MEMORIES

Earliest memories as reported by members of the course. Describe the earliest event of your life that you can recall, and give the reason for the persistence of the memory.

Females

Pres- ent age	Age at time of event	Incident	Cause of Memory
21	4	Accident to sister.	Excitement.
21	4	Attending (visiting) a Kindergarten.	Event.
19	4	Moving from one house to another.	Event.
24	5	Quarrelling with brother.	
21	3	Sickness (self).	
21	3	Little dish in rain, getting it as gift and taking it home.	Having the dish later.

Females			
Pres- ent age	Age at time of event	Incident	Cause of Memory
22	..	Discovering Santa Claus by seeing toys before Christmas.	N o b o d y ever mentioned it.
22	4	Moving to different town, first trip on the train.	Remember what was seen.
25	5	Cut head, blood in water, new bonnet, ice cream.	Great event.
21	4	First day at school, picture of pig, teacher took her on her lap.	Keen attention.
24	19 mo.	Learning to walk with red chair; father took chair and kept a little ahead. She walked alone until she became conscious of walking alone, then sat down,—surprise and indignation.	People say I do not remember this but I think I do. Excited.
24	2	Being baptized.	Pain.
23	5	Can of lye spilled on face—painful.	
20	3	Crossing Miss. River on train; saw men in a boat.	
19	4	Building new house; carpenter took her up ladder to chimney—seeing country.	Event.
21	4	Drinking maple sap out of small tin bucket.	
22	3	Visiting California calla lily bed, burying head in the white flowers.	Proof of memory, showed spot to mother after 13 years.

Females			
Pres- ent age	Age at time of event	Incident	Cause of Memory
21	3	Rocking cradle at home of relative.	First view of cradle.
30	3	Birth of sister—father carried her to see the baby.	
22	3	Very sick—medicine in blue bottles—learning to walk after sickness.	
21	7	Excitement on hearing Santa Claus in house.	
20	3	Building new house, and birth of brother.	
24	2½	Blizzard—looking through window.	
24	3	Birth of brother.	
23	3	Put carbolic acid to mouth, carried to neighbors, given cream.	
21	4	Hitching dog to sleigh and trying to whistle.	
25	2½	Finger crushed—mother crying.	
23	3	Barefoot man with gun came for drink.	
20	2-3	Walking barefoot in yard, and (2) carrying little kittens in apron.	Probably the first time.
21	3	Picture taken—lace apron, bare feet.	
20	2	Seeing baby wrapped in red blanket.	
21	3	The corner where playthings were kept; (2) taking medicine for whooping cough.	
20	4	Going to bed alone for the first time, pillow fell on floor in dark, did not pick it up.	

Females			
Present age	Age at time of event	Incident	Cause of Memory
19	2½	Prairie fire.	Not sure.
19	6	Trip with mother—being sick on trip.	
24	3	Trying to build windmill with nails.	
24	4	Running away from home with brother, scared at movers—ran home.	The disobedience.
22	3	Lying on floor playing with dominoes, sunlight on red carpet.	
22	4 or 5	Playing in neighbor's house, fell and hurt head—carried home—what she said to mother.	
20	4	Visit at school.	Remembers vividly all details.
19	2½	Birth of brother.	
24	2½	Birth of brother.	
22	3	Falling down stairs.	Joy.
21	4	Rolling two-year old brother down stairs.	
21	3½	Wheeling baby carriage.	
24	4	Brother whipping me on birthday.	Joy.
21	3	Broke doll and bank to show force.	
20	3	Dance of father and new mother.	
21	3	When moving left blunt shears.	Father's laughing.
23	3	Grandfather sat on baby chair.	
21	3	Illness—rabbits for taking medicine.	
			Frightened.
			Sick feeling of fear at result.
			Pride.
			Hurt my feelings.
			Heart broken.
			First view of new mother.
			Cried on train.
			Pride at grandfather being the baby.
			Weakness and desire.

Females			
Pres- ent age	Age at time of event	Incident	Cause of Memory
21	5	Girl thinking she had swallowed pins.	Druggist saying she would have to be cut open.
20	5	Going to barn—freezing hands.	Pain.
20	3	Clothes around neck—hung on tree.	Scared — nearly hung.
21	3	Swing on Sunday morning "till old cat dies."	Pleasure.
20	4	Let brother run away.	Sorry at disap- proval.
19	3	Naming of brother.	Compromise made.
21	4½	Sister started to school.	Lonesomeness first day.
21	3	Bananas at party.	Good — black specs—seeds.
20	7	Sister's death.	Fear of dark room.
19	4	Boys slid dishpan down cellar steps to entertain her while sick.	
21	3	Wasp sting.	Disobeyed warning and hurt.
20	3	Christmas away from home— mother came instead of Santa Claus.	Joy.
23	3	Taken from home at brother's death, contagious disease.	Fear in going— joy in return- ing.
20	4	Running away from home.	Punishment.
23	2½	Foxes in sack.	Fear of wrig- gling.
21	4	First ice cream at band concert.	Best ever tasted.

Females			
Pres- ent	Age at time of event	Incident	Cause of Memory
27	2½	Flood and work to save mill-dam.	Excitement.
22	4	Bit by dog.	Scared.
22	4	Playing with cousin who could not talk English.	
19	3	Ride in a little wagon.	Seemed small by mother.
21	5	Fell from upstairs' window.	Shaking her.
22	4	Chased by turkey gobbler.	Laughing at her.
20	5	Grandfather, day he left for fair— —he died at fair.	His happiness.
33	5	Fall from attic ladder.	How house looked as I fell.
24	4	Placed nickel in baby's mouth— choked.	Scared.
21	3	Dress—gray and red velvet.	
21	2	Shut aunt in closet with spring lock—was going away, could not get out.	Disappointment and fright.
21	2½	Man sitting on water in river, fishing.	Wondered at it.
24	2½	Mother's death, sent to aunt, wanted to go off with father, tried to climb in.	
18	3	Girl playing with fire and burned when she walked into it.	Terror.
21	4	Would not come into house, father slapped.	Only punishment.
27	2½	Rat dropped dead onto bed from cabin.	Fright.
22	7	Caterpillar put on her.	Frightened and made sick.

There were only seven cases of males given and

these have been omitted from the above list. Not all of the cases of the women who replied to the questionnaire have been given but probably sufficient to indicate the nature of the early memories that may be recalled in after life. From the information obtained it would seem that not more than twelve per cent of the class can go back in memory to the third year or earlier, about twenty per cent to the fourth year or earlier, and less than fifty per cent to the fifth year or earlier. The greatest variety, as well as the most lasting memories occur in the teens.

IV. **Imagination.** Every one who has studied children is aware of the important part played by imagination in childhood. Both passive and active imagination seem to be laying the foundation for future intellectual strength and activity. For a number of years the child is scarcely able to distinguish between imagination and reality. He peoples his world with all sorts of things. The inanimate objects around him are furnished with souls and real life. They feel and receive proper chastisement when disobedient. A relic of this personification may be seen even in manhood when we are tempted to kick the inanimate object that has caused us to stumble. No field of child study seems to offer more interesting and profitable returns than the imagination of children. Observe for an hour all the activities of a child (from three to seven) at play, flitting now to real, now to unreal, his whole creative world changed to a new one by the mere chirp of a bird, or the movement of an object, and the beginnings of intellect, of emotion and of aesthetics, will be presented with new meaning. Such study will enlarge the sympathy of the observer and rejuvenate his mind.

The many incongruities of this make-believe world of the child do not occur to him. The myth, the fairy tale, the folklore, the imaginative and the hero stories are alike real to him, and, may we not say, furnish the food for the later stages of intellect.


Imagination does not create but only revives or reproduces material already in mind. By transforming and reuniting parts of former experiences the product may seem new. The power of imagination differs greatly with individuals.

The fuller and richer the mind the greater the play and possibilities of imagination. Passive imagination (spontaneous uncontrolled imagining or living over of the past), including fancy, reverie or day-dreaming reaches its acme only in a well filled mind, and is prevalent among artists, poets, and scientists. It has, no doubt, a legitimate place, but only when these images and day-dreams are put into thought and action. But the kind of imagination most essential to progress is the active or constructive imagination. Here again the scientists and artists lead. A study of the natural processes of constructive imagination is important to every student. There is the breaking up or disassociation of past experiences, the fading or dropping away of some, the reappearing and combining of others in new and unnatural forms, the recombining of these forms into still others more in harmony with the individual's faith, instincts, and intelligence. In this process there are four important steps which will be discussed further in class; (1) The individual's natural impulse or tendency (attitude); (2) the intention, aim, purpose; (3) selective attention; (4) the judgment of appropriateness to the ideal, the feeling of fitness.

What are some of the early indications of imagination? Give examples of the different types. Is a vivid imagination a hindrance to scientific study? Are we apt in our educational methods to overestimate the imagination? Does a vivid imagination tend to increase deception or dishonesty of character?

RECORDS ON IMAGINATION

1. "Mme. Necker de Saussure says, 'I have seen a child eleven months old recognize a very small dog in an engraving.'" Mme. Necker de Saussure—Compayre, *The Intellectual and Moral Development of the Child*, 1:247.
2. "427th Day. The kindergarten balls, which had been to the child nothing more than balls, were one day, swung back and forth, like the pendulum of the clock, while he said, 'Tick, tock, tick, tock'." Winifred Hall, *Child Study Monthly*, 2:533.
3. "479th Day. That imagination had changed his shoe to a running horse was evident when he pushed it rapidly across the table, saying 'horse'; and had imbued an apple with locomotive power when he rolled it across the floor as he cried 'apple walk'." Winifred Hall, *Child Study Monthly*, 2:533.
4. "484th Day. He came one day with a half-inch square of white paper, which he desired to put on his mother's head, saying with a merry laugh 'hat'." Winifred Hall, *Child Study Monthly*, 2:533.
5. "577th Day. She called a toy pitcher 'milk man' because it had contained milk but she did it with a laugh, clearly realizing how far the metaphor was stretched." Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 175.
6. "She drew with chalk a round mark on the floor, put a row of dots within it and said they

- were buttons—end of eighty-third week.” Geo. Van Ness Dearborn, *Moto-Sensory Development*, page 175.
7. “A little girl aged only one year and ten months insisted upon being addressed by a fancy name, Isabel, when she was put to bed but would not be called by this name at any other time.” Jas. Sully, *Studies of Childhood*, page 39.
 8. “A little boy not yet two years old would spend a whole wet afternoon ‘painting’ the furniture with the dry end of a bit of rope.” Jas. Sully, *Studies of Childhood*, page 37.
 9. “For example, R. looking at columns of coal-smoke rolling out of a chimney of a nearby house, cried ‘choo-choo,’ twenty-sixth month.” Dr. R. Major, *First Steps in Mental Growth*, page 238.
 10. “When he is in his cradle he shows me the middle of the bed and then the edge, and says ‘This is the road and that is the ditch’. Two and a half years old.” Guyon—Compayre, *The Intellectual and Moral Development of the Child*, 1:257.
 11. “There sits a little charming master of three years before his small table busied for a whole hour in a fanciful game with shells. He has three so-called snake heads in his domain, a large one and two smaller ones; this means two calves and a cow. In a tiny tin dish the little farmer has put all kinds of petals, that is the fodder for his numerous and fine cattle..... When the play has lasted a time the fodder dish transforms itself into a heavy wagon with hay; the little shells now become little horses and are put to the shafts to pull the terrible load.” Goltz—Sully, *Studies of Childhood*, page 42.
 12. “Another little boy well on in his fourth year when tracing a letter L happened to slip so that the horizontal limb formed an angle thus,
. He instantly saw the resemblance to

the sedentary human form and said, 'Oh, he's sitting down.'" Jas. Sully, *Studies of Childhood*, page 30.

REFERENCES

1. *Aiken, Catherine.* Methods of Mind Training, pp. 46-60.
2. *Baldwin, James M.* Mental Development in the Child and the Race, pp. 249-275.
3. *Baldwin, Jos.* Psychology Applied to Art of Teaching, pp. 96, 102 f.
4. *Bastian, H. C.* Sensation and Perception. *Nature*, 1: 213-214, 309-311.
5. *Bolton, T. L.* Growth of Memory in School Children. *Am. Jour. of Psych.*, 4: 362-378.
6. *Boyd, Wm.* Ideational Memory. *Paidologist*, 7: 28-32.
7. *Brittain, Horace L.* A Study in Imagination. *Ped. Sem.* 1907, 14: 137-207.
8. *Burnham, Wm. H.* Individual Difference in the Imagination of Children. *Ped. Sem.*, 2: 204-225.
9. *Burnham, Wm. H.* Illusions of Memory. *Scribner Mag.*, 11: 185-195.
10. *Burnham, Wm. H.* Memory, Historically and Experimentally Considered. *Am. Jour. of Psych.*, 2: 39-90, 225-270.
11. *Chalmers, Lillian H.* Studies in Imagination. *Ped. Sem.*, 7: 111-123.
12. *Colegrove, F. W.* Individual Memories. *Am. Jour. of Psych.*, 10: 228-255.
13. *Colegrove, F. W.* Memory, Chap. 6.
14. *Colvin, S. S. and Meyer, I. F.* Imaginative Elements in the Written Work of Children. *Ped. Sem.*, 13: 84-93.
15. *Compayre, G.* Intellectual and Moral Development, pp. 207-264.
16. *Davidson, Thos.* Perception. *Mind*, 7: 496-513.
17. *Denio, F. B.* Memory and Its Cultivation. *Educa.*, 18: 217-228.
18. *Drummond, Margaret.* Memory. *Paidologist*, 9: 34-52.
19. *Drummond, W. B.* The Child; His Nature and Nurture, pp. 93-106.

20. *Edridge-Green, F. W.* Memory—Its Logical Relations and Cultivation. Part II.
21. *Evans, Wm. L.* Memory Training (see Contents).
22. *Franz, S. I. and Houston, Henry E.* Accuracy of Observation and Recollection in Children. *Psych. Rev.*, 3: 531-535.
23. *Hall, G. Stanley.* Contents of Children's Minds; also in *Aspects of Child's Life and Education*, pp. 1-52; also *Ped. Sem.*, 1: 139-173.
24. *Hall, G. Stanley, and Wallin, J. E. W.* How Children and Youth Think and Feel About Clouds. *Ped. Sem.*, 9: 460-506.
25. *Hall, G. Stanley.* Note on Early Memories. *Ped. Sem.*, 6: 485-512.
26. *Hall, Mrs. W. S.* The First Five Hundred Days of a Child's Life, 2: 522-526.
27. *Henri, Victor and Catherine.* Earliest Recollections. *Pop. Sci. Mo.*, 53: 108-115.
28. *Holbrook, M. L.* How to Strengthen the Memory.
29. *Jastrow, Joseph.* A Statistical Study of Memory and Association. *Educa. Rev.*, 2: 442-452.
30. *Kay, David.* Memory, What It Is, and How to Improve It. Chaps. 1, 2, 7, 8, 9.
31. *King, Irving.* The Psychology of Child Development, pp. 28-109.
32. *Kirkpatrick, E. A.* An Experimental Study of Memory. *Psych. Rev.*, 1: 602-609.
33. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 247-271.
34. *Lukens, H. K.* The Connection Between Thought and Memory.
35. *McCady, Louisa L.* The Child and the Imaginative Life. *Atlan. Mo.*, 100: 480-488.
36. *McMillan, Margaret.* Education Through the Imagination.
37. *Monroe, Will S.* Tone Perception and Music Interest of Young Children. *Ped. Sem.*, 10: 144-146.
38. *Monroe, Will S.* Memory Test of Students. *Sch. Journal (N. Y.)*, 68: 242-243.
39. *Monroe, Will S.* Perception of Children. *Ped. Sem.*, 11: 498-507.

40. *Moore, Kathleen C.* Mental Development of a Child, pp. 85-114.
41. *Morton, Aima B.* The Heredity of the Power of Observation, the Memory and the Intelligence. *Educa.*, 18: 562-566, 624-632.
42. *O'Hara, Julie C.* A Few Reflections on a Young Child's Mind. *Child Study Mo.*, 2: 301-305.
43. Origin of the Intellect. *Edin. Rev.*, 170: 359-388.
44. *Paget, Walburga.* A Child's Recollections. 19th Cent., 63: 232-244.
45. *Patrick, G. T. W.* Memory in Education. *Educa. Rev.*, 4: 463-474.
46. *Perez, Bernhard.* First Three Years of Childhood, pp. 110-162.
47. *Pick, Edward.* On Memory, pp. 55.
48. *Pillsbury, W. B.* The Effect of Training on Memory. *Educa. Rev.*, 36: 15-27.
49. *Potwin, Elizabeth B.* Study of Early Memories. *Psych. Rev.*, 8: 596-601.
50. *Preyer, Wm.* Mental Development of the Child (Infant Mind), pp. 30, 47.
51. *Preyer, W.* The Development of the Intellect, pp. 1-23.
52. *Radestock, Paul.* Habit and Its Importance in Education.
53. *Ribot, Theo.* Diseases of Memory (see Index).
54. *Salisbury, Albert.* The Disparagement of Memory. *Jour. of Educa. (Boston)*, 59: 35-36, 51-52.
55. *Shaw, J. C.* Text of Memory in School Children. *Ped. Sem.*, 4: 61-78.
56. *Shaw, E. R.* Comparative Study of Children's Interests. *Child Study Mo.*, 2: 152.
57. *Shinn, Milicent W.* The Biography of a Baby, pp. 238-247, 161-181.
58. *Small, Maurice H.* The Suggestibility of Children. *Ped. Sem.*, 4: 176-220.
59. *Smith, Theodate L.* Psychology of Day Dreams, in Aspects of Child Life and Education, by G. Stanley Hall, pp. 53-83.
60. *Sully, Jas.* The Age of Imagination. *Pop. Sci. Mo.*, 45: 323-330.

61. *Sully, Jas.* The Imaginative Side of Play. Pop. Sci. Mo., 45: 577-588.
62. *Sully, Jas.* Studies of Childhood, pp. 25-63.
63. *Tanner, Amy Eliza.* The Child, pp. 96-140.
64. *Taylor, A. F.* Study of the Child, pp. 54-75, 124-136.
65. *Tracy, Fred.* Psychology of Childhood, pp. 60-87. 7th Ed., pp. 42-63.
66. *Vaschide, N.* Experimental Research Upon the Creative Imagination in the Child. Paidologist, 2: 111-113.
67. *Vaughan, W.* Memory Training in the Public Schools. Educa., 12: 468-477.
68. *Warner, F.* Study of Children, pp. 119-136.
69. *Wiltse, Sara E.* Mental Imagery of Boys. Am. Jour. of Psych., 3: 144-148.

CHAPTER XIX

KNOWING—Concluded

CONCEPTION—JUDGMENT—REASONING

These terms, representing as they do the higher processes of thought, need more explanation than can be given here. In passing from the concrete or individual notion to the abstract or general notion, we pass from the percept to the concept, and in comparing or connecting two or more percepts or concepts we perform an act of judgment. Likewise reasoning processes are necessary in forming judgments, while the judgment when formed becomes the starting point for new processes of reasoning. These processes are so closely connected, differing rather in quantity than quality, that it becomes necessary to treat them together.

It is not easy to determine when the child first begins to generalize. Locke, Condillac, Taine and others place this period with the beginning of speech, while Perez, Preyer, Sully, with others, place it earlier. There is certainly not much progress in abstraction prior to the use of words, and yet, as explained by Preyer and Perez, there may be considerable judgment and reasoning, and even vague abstraction, without language.

Make note of the earliest indications of thought in children and the age of the child observed. Also, when possible make the original observations on children under three and bring to class for comparison.

Along with the age of imagery mentioned in a for-

mer lesson, there is another equally pronounced period known as the age of questioning. This age generally begins in the third year, reaches the maximum in the fifth, and declines through inhibition with the sixth year. First, a seeking for facts—"What is it?" Then the cause, "Why is it?" and then "How are things made?" That little "Why" which passes through all phases of thought becomes most difficult to satisfy. The meaning of this questioning. Its importance to intellectual growth. Its value as a key to the child's mind. Show how these three questions of the child illustrate the three important phases of intelligence: Scientific (gathering); philosophic (interpreting); inventive (constructive teaching)? What is a good way to gather data on the reasoning of children?

TYPES OF THE CHILD'S REASONING

1. "After grasping my finger and drawing it to his mouth, his own hand prevented him from sucking it; but on the 114th day, after acting in this manner, he slipped his own hand down so that he could get the end of my finger into his mouth." (This was repeated.) Chas. Darwin, *Mind*, 2:287.
2. "118th Day. When drinking, if the cup was withdrawn from his mouth, he took hold of his mother's hand and drew it back, letting go when he had obtained the milk." Winifred Hall, *Child Study Monthly*, 2:534.
3. "When the little boy R. was four months old, he was playing one day on the floor surrounded by his toys. One toy rolled away beyond his reach. He seized a clothespin and used that as a "rake" with which to draw the toy within reach of his hand." Fred Tracy, *The Psychology of Childhood*, page 68.

4. "The baby showed intelligence in her actions in several little ways, such as tugging with impatient cries at her mother's dress when she wanted her dinner and leaning over to pluck at the carriage blanket under which her mother had laid some flowers to keep them from her." Five months old. Milicent Shinn, *The Biography of a Baby*, page 167.
5. "At six months Marcel watches attentively the shadows cast on a white wall by movements of the fingers. He follows them with his eyes, but turns frequently to look at his father's hand." Compayre, *The Biography of a Baby*, 11:37.
6. "In the thirty-seventh week when anyone passed a certain window the child looked on to the door by which the room was entered." Winifred Hall, *Child Study Monthly*, 2:535.
7. "342nd day. A ball, with which he was playing in his bed, rolled out of reach upon a blanket, he began at once to pull the blanket toward him until he could reach the ball." Winifred Hall, *Child Study Monthly*, 2:535.
8. "One year, four months. C. likes to climb into a chair beside the dining room table and play with the colored vinegar bottle and other dishes, but has been taught that he must not. He was playing about the room with a tin can and a wooden stopple when he walked up to the table, pushed them up on it until he could not reach them, then drew a chair up to the table and climbed into it, as tho he had a right to his playthings. This same thing has been repeated." H. W. Brown, *Ped. Sem.* 2:369.
9. "A little girl of this age (eighteen mos.) used to feign sleep until the nurse left the room, when she would immediately resume her interrupted romps." Fred Tracy, *The Psychology of Childhood*, page 69.

10. One year, eight months. "S. was trying to put on her rubbers. Her mother told her to push. When she was putting on her dress soon after, S. said 'push.'" H. W. Brwn, Ped. Sem. 2:369.
11. "One year, eight mos. S. had a doll whose hair had all come off, and after visiting her grandfather, who was bald, she named the doll 'grandpa.'" H. W. Brown, Ped. Sem. 2:369.
12. Two and a half years. "When the child did not see the sun in the sky he said, 'It has gone to bed; tomorrow it will get up and drink tea and eat a piece of bread and butter.'" F. Tiedeman, Record of Infant Life, page 45.

CHAPTER XX

IDEAS OF SELF

Little by little the child learns to distinguish between self and not self—its objective and subjective world. The earliest difference in the sensations when the child touches its own body or some foreign object must soon be observed, and the same is true of the muscular feeling accompanying bodily movements, and its absence in movements made by others. By the fifth month the child may be seen to observe attentively its hands and fingers, and later other parts of the body; however, its idea of what is included in self is quite vague for the first two or three years. Preyer tells of a boy of nineteen months who endeavored to hand over his foot on being asked. All the senses play a part in the development of consciousness.

Considerable advance in the ideas of self occurs when the child perceives itself as the cause of the change taking place. It discovers its ability to make sounds, to move its limbs, to tear paper, to move others by appeals, etc. Thru these it learns to distinguish between its body and its higher self. Sully relates the case of a girl of three who gave evidence of making this distinction.

It is interesting to note in this connection the child's action toward its image in the mirror. It recognizes the image of its attendant sooner than its own. Preyer's boy first connected his image with himself on the twenty-first month. How do young animals act upon first seeing their images in the mirror; likewise

children? When and how do children come to recognize the image as their own?

THE USE OF PRONOUNS

The child first uses concrete names as "baby good," "mama play," "papa come," etc. The transition from "baby" to "I" occurs about the twenty-fifth month. "Me" is generally used before "I," and "I" and "me" before "you."

The child acquires the use of the language by imitation. How about personal pronouns? The correct use of "I" is taken by many observers as marking the beginning of a clear idea of itself.

Observe a child of twenty or thirty months to see what use he makes of pronouns. The Pedagogics of the subject.

REFERENCES

1. *Allen, Grant*. A Thinking Machine. Pop. Sci. Mo., 28: 596-605.
2. *Baldwin, J. M.* Mental Development in the Child and the Race, pp. 276-316.
3. *Bowen, H. C.* Training of the Judgment and Reasoning Faculties. Sci., 9: 63-68, 164-168.
4. Children's Questions. Pop. Sci. Mo., 43: 238-239.
5. *Compayre, G.* The Intellectual and Moral Development of the Child, pp. 265-298.
6. *Compayre, G.* Development of the Child in Later Infancy, pp. 1-61, 260-288.
7. *Davis, Anna I.* On Children's Interests in the Casual Idea. Child Study Mo., 2: 226-232.
8. *Drummond, W. B.* The Child: His Nature and Nurture, pp. 102-103.
9. *Franklin, Christine L.* Intuition and Reason. Monist., 3: 211-219.
10. *Hall, Mrs. W. S.* First Five Hundred Days of a Child's Life. Child Study Mo., 2: 530-537.

11. *Hancock, J. A.* Children's Ability to Reason. *Educa. Rev.*, 12: 261-268.
12. *Kidd, D.* Savage Childhood, pp. 57-78.
13. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 274-286, 302-317.
14. *Marwedel, Emma.* Conscious Motherhood, pp. 192, 209-224, 501-511, 514-547.
15. *Perez, Bernard.* First Three Years of Childhood, pp. 163-231, 280-285.
16. (*J. J.*) Psychology of Reasoning. *Science*, 8: 265-266.
17. *Preyer, W.* Mind of the Child. Development of the Intellect, pp. 189-207.
18. *Preyer, W.* Infant Mind, or Mental Development in the Child, pp. 66-83, 141-156.
19. *Russell, E. H.* Child Observations. Imitation Introductions, pp. xv-xxviii.
20. *Scott, Colin A.* Secondhand Science and Children's Reasoning. *Educa. Rev.*, 31: 167-179.
21. *Sully, Jas.* Studies of Childhood, pp. 64-120, 178-182.
22. *Sully, Jas.* Psychology of Conception. *Monist.*, 1: 481-505.
23. *Tanner, Amy E.* The Child, pp. 141-172.
24. *Taylor, A. R.* The Study of the Child, pp. 137-158.
25. *Tracy, Fred.* Psychology of Childhood, pp. 75-87. 7th Ed., pp. 63-74.
26. *Wright, C.* Evolution of Self-Consciousness. *North Am. Rev.*, 116: 245-310.

CHAPTERS XXI-XXIII

WILLING

THE DEVELOPMENT OF THE WILL

Whatever theory is held regarding the origin and freedom of the will, no one will deny its importance in the scheme of education. The sign of will is muscular movement; but not all movements indicate will, for the first movements of the child are impulsive, reflexive, or instinctive and wholly involuntary. These movements furnish the sensations, perceptions and ideas out of which the first imitative (will) movements are developed, and are consequently important factors in the child's education. As stated by Preyer, "On the forming of the will depends well nigh everything in the earliest education."

I. **Impulsive Movements.** According to Preyer's most interesting scheme of classification the impulsive movements take place without previous peripheral excitement, but are the result of internal changes affecting the lower motor centers. They are unconscious, aimless and entirely involuntary. Most of the early movements are of this class, such movements as stretching, yawning, spontaneous movements of the legs and arms, body, eyes, spreading or bending of the toes and fingers, contortions of the face, doubling up in sleep and many other movements due to internal stimulus. Some of these movements like stretching and yawning persist thru life, others continue for years, as seen in sleep, while a majority of them be-

come eliminated by the end of the second year. Many of these movements are transformed into expressive movements as when the legs, thru rapid movement, show that the child is displeased. The impulsive movements are involuntary but they furnish the foundation for later voluntary ones.

II. **Reflex Movements** require peripheral excitement and both sensory and motor apparatus, but do not involve consciousness prior to the movement. They are later in origin than the impulsive or spontaneous movements and increase in efficiency after birth. Many pass thru a double transformation from reflex to voluntary and back again to reflex or automatic. A majority seem inborn, while others, as reflex eye movements, pain reflexes, etc., seem acquired. Do reflexes continue thru life? How do reflexes aid in the development of the will?

III. **Instinctive Movements** require at least three sorts of centers, more or less connected,—lower sensory, higher sensory and lower motor centers; they have an aim without foresight of it, and are not imparted by education. They are the result of inherited psychophysical complexes, coördinated impulses and reflexes; spontaneous, congenital modes of action; organized and controlled nervous responses. They are numerous and accurate in animals, more numerous but less accurate in man wherein they change to habits and lose their value as modes of response and control. They furnish the foundation for the development of intelligence. A thorough study of the psychology of the instinct and its relation to habit and intelligence will be specially helpful to the teacher.

(1) **Seizing.** Moving the hands and arms is partly impulsive, partly reflex, but also has instinctive ele-

ments, as movements towards the face and holding fast to objects in the hands. First intentional grasping, 18th week (Sigismund and Preyer). Contraposition of thumb twelfth week,—not of great toe. Right and left handedness—first both hands move together, then separately about equally; from the eighth month the right hand is preferred.

(2) **Instinctive Mouth Movements:** Sucking, licking, biting, chewing, grinding the teeth. These movements may contain other elements, but every one contains without doubt an instinctive, unconscious purpose.

(3) **Learning to walk** comprises another series of instinctive movements, resulting first in ability to balance head (3rd or 4th month), next ability to sit upright (7th to 10th month; with support a few months earlier); then ability to stand with and without support (9th to 12th month), and finally ability to balance the body in walking, which is most difficult and varies most in time. This series includes creeping, running, jumping, and climbing. Why should these movements be classed as instinctive? Wherein are they manifestations of will? Should children be urged in, or prevented from any of these movements? Why? How do they aid in the later development of the child? How are instincts related to intelligence?

IV. **Ideational Movements:** Due to sense perception with a conscious idea of the end sought and the means to its realization. They require at least four sorts of nerve centers—lower and higher sensory, the lower and higher motor. Here we have for the first true will movements—actions in the true sense. This group completes the list of possible movements. From the simplest to the most complex there is a gradual

graduation with considerable over-lapping and no distinct lines of demarkation. The ideational movements are best studied thru the three subdivisions, imitative, expressive, and deliberative movements.

(a) **Imitative Movements.** The beginnings of imitation is of special interest in furnishing proof of cerebral activity. What are the steps necessary in imitation? Customary movements are most frequently imitated. Preyer's son imitated pursing of lips in the fifteenth week. But did not repeat it until the seventh month, when imitative movements of the head and laughing occurred. By the end of the first year, the child's life is full of imitation. It forms its chief mode of expression and is exceedingly important in shaping its life. The child imitates the voice and actions of all who come under its notice, and hence is more or less like them. Make a list of the prominent early imitations of children.

(b) **Expressive Movements.** Facial expressions and gestures arise chiefly from imitation, but movements like crying, pouting the lips, shaking the head, wrinkling the forehead, smiling, etc., begin as reflex or impulsive movements which are later brought under the control of the will. The peculiar form of these expressions is due to heredity. Prominent among expressive movements are: Crying, at first a pure reflex, which becomes expressive with variations in intonation in the second or third month; tears, occur about the third month and are very expressive; smiling and laughing, which differ only in degree and are not observed until the second or third month. Impulsive movements of face early simulate a smile. The first real smile seldom occurs before the end of the second month. Laughing a few weeks later. Pouting of lips

as seen in attention, questioned negation and sullenness. Shaking the head and nodding: The former is an inborn reflex, instinctive movement and the latter an acquired one. Shaking the head becomes expressive almost from the first as in turning the head, refusing the breast, etc., while nodding is not acquired before the second year. Kissing, a late acquired, expressive movement, not of the universal practice—seldom imitated before the second year, and then without intelligence of its meaning. Begging with the hands and pointing, before the end of the first year. Shrugging shoulders, common in some people but not universal. Attitude of the body as in fear, anger, jealousy, pride, ambition, etc. Many other movements of face and hands may be added, also the higher forms of expression thru language spoken and written and thru drawing.

(c) **Deliberate Movements.** These movements made as the result of choice and understanding indicate that the child has assumed control of his own activities. They also presuppose many involuntary movements of inborn impulsive, reflexive and instinctive movements. No movement can be made voluntarily which has not first been made involuntarily.

The will does not spring into existence all at once, but is developed so gradually out of the movements already studied that it is difficult to say when we first have will, doubtless not before the third or fourth month. It is at first weak and easily diverted by a slightly stronger stimulus, hence the inability of sustained attention. A more important step is made when the child first becomes able to inhibit some movements in order to allow freer play of others. The first few years of the child are important above all others

in establishing the foundations for will and character. Then are sown the seeds which will produce vacillation on the one hand and obstinate, narrow-mindedness on the other. The truest conceptions of child nature are indispensable here. Awaken in the child a sense of responsibility—use just prohibitions—give reasons as soon as the child can understand them—be sympathetic and invariably consistent. Inhibition and self-control are often truer indications of a cultured will than expression. Show the relation of feeling, knowing, willing. Which field is the more important in character building? Why?

RECORDS OF BEGINNING OF IMITATION

1. "Sixtieth Day. She 'talks' with her mother a good deal—the imitative beginnings of a voluntary use of the vocal organs." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 25.
2. "Eighty-seventh Day. Imitation seems to be on the way today, for L. immediately attempts to shake her hand when one makes this movement before her, and often with good success." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 42.
3. "Sixteenth week. The first attempt at imitation was evinced one day when her father was playing with her. Holding her in front of him, he alternately approached and withdrew his face to the side of hers, making for her amusement a snorting noise. We then observed her (after I know not how many performances of his) advance her head towards his uttering a long deep a—a—a. He repeated his actions and she hers ten times." Kathleen Moore, *Ped. Sem.*, 8:236.
4. "When only four months old he would cry if he saw another baby cry." Louise Hogan, *The Study of a Child*, page 36.

5. "At the end of the fifteenth week appeared for the first time the beginnings of an imitation, the infant making attempts to purse the lips when I did it close in front of him." Preyer, *Pop. Sci. Mo.*, 33:250.
6. "The youngest imitative act that seems to presuppose an idea of motion and sound of which I have a record is the case of Baby Florence who 'When five months old imitated very closely the growling of a pet dog and at six months associated the name by growling when asked what Bonnie did.'" Bell Waldo, *Child Study Monthly*, 2:77.
7. "Her uncle had a fashion of slapping his hand down on the table by way of salutation to her, and one day (when she had passed a week of her sixth month) she slapped down her hand in return." Milicent Shinn, *The Biography of a Baby*, page 167.
8. "Seventh month. On the fourteenth of March the infant began to articulate and repeat sounds." F. Tiedman, *Record of Infant Life*, page 27.
9. "220th day. The child was not seen to deliberately imitate until the thirty-second week, when immediately after seeing his grandfather emit a short quick breath, he did so. He then imitated a cough, shrugging of the shoulders, and other motions." Winifred Hall, *Child Study Monthly*, 2:529.
10. "231st day. Over and over this morning after I had pounded with a round stick or wand on a pillow, thus making a loud noise, she would take the wand and similarly shake it against the pillow." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 101.
11. "Examples of mimetic responses to these early, crude, sensory images are:—the child J's protruding his tongue (234th day) as he watched the copy which was made for him; also the child R's imitating shaking a newspaper to make it rattle (237th day)." D. R. Major, *First Steps in Mental Growth*, page 128.

12. "A young relation of mine eleven months old, came once on a visit to my family. On the day of his arrival, seeing me smoking a cigar, he began to puff vigorously as if he were blowing smoke thru his lips." Perez, *The First Three Years of Childhood*, page 78.
13. "H's first clear imitation was on May 24th (beginning of the ninth month) in knocking a bunch of keys against a vase, as she saw me do it, in order to produce the bell-like sound." J. M. Baldwin, *Science* (old series), 19:15.
14. "Thirty-eighth week. In this week I saw for the first time a conclusive proof of the imitation of the action of another person, when he took from my hand two spoons which I had been clapping together and awkwardly reproduced the performance." Kathleen Moore, *Ped. Sem.* 8:236.
15. "281st day. A handkerchief had been used upon his nose and then laid beside his hand. He picked it up and laughingly tried to wipe his own nose." Winifred Hall, *Child Study Monthly*, 2:529.
16. "He sang the music of two lines of 'Annie Rooney' correctly from imitation, when nine months old. His nurse maid sang this song daily." Louise Hogan, *The Study of a Child*, page 19.
17. "303rd day. L. tried to imitate the out blowing of a candle, but succeeded only in blowing her nose, not getting the necessary mode of holding her mouth open and her soft palate shut." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 118.
18. "Another female child imitated the following movements in a recognizable manner: In the eleventh month she threatened with the forefinger if any one did so to her; used a brush after she had seen brushes and combs; used a spoon properly and drank from a cup; and made a kind of cradling movement with her doll, singing 'Eia—eia.'" Frau von Strümpell—Preyer, *Pop. Sci. Mo.* 33:251.
19. "Frank—age one yr. Frank was sitting on the floor watching his mother sweep. She used a

- small brush to sweep under the table. The next day Frank found the brush on the floor, crept to the table, and moved the brush about under it." E. H. Russell, *Child Observation—Imitation and Allied Activities*, page 3.
20. "Baby Janet thirteen months old puts her doll in a chair and rocks it singing 'bye, bye.'" Bell Waldo, *Child Study Monthly*, 2:80.
21. "Kate—age one yr. three mos. When Katie is sleepy she rocks her cradle and sings, 'By—by.'" E. H. Russell, *Child Observations—Imitation and Allied Activities*, page 2.
22. "A little girl only fifteen months old had already begun to imitate her father's frown and irritable way and angry voice; ———." Perez, *The First Three Years of Childhood*, page 92.
23. "Thus when sixteen months old he (C) spontaneously imitated in a rough fashion the puffing sound produced by his father when indulging in the solace of tobacco; and he uttered a similar explosive sound hearing the wind." Jas. Sully, *Studies of Childhood*, page 147.
24. "Arthur, age one year five months. Arthur gave the cat a share of his bread and butter, and wiped the cat's mouth with his napkin." E. H. Russell, *Child Observation—Imitation and Allied Activities*, page 3.
25. "My father always said grace before meals. One morning nearly all the family were seated waiting for some of the others, when my little nephew one and a half years old folded his hands, bowed his head, murmured something in a low tone. He then lifted his head with a satisfied look and passed his plate for food." Bell Waldo, *Child Study Monthly*, 2:78.

EARLY INDICATIONS OF WILL

1. "Fourth day. My child refused to nurse at the left breast, which was somewhat more inconvenient for him than the right. He refused, turning his head

away decidedly from it, and on the sixth day he screamed besides." Preyer, *The Mind of the Child*, Part I:313.

2. "Thirty-eighth day. Mr. C. called and the baby looked attentively at him. When sitting on his mother's lap he made vigorous and repeated efforts to hold his head erect in order to see this visitor." Kathleen Moore, *Mental Development of a Child*, page 23.
3. "Fifty-ninth day. If the child lost his hold upon the nipple, with open mouth and eyes fixed upon the breast, he made "reaches with his head and neck till he succeeded in regaining his hold." Kathleen Moore, *Mental Development of a Child*, page 23.
4. "Sixty-eighth day. L. hung tightly to the handle of her rattle this morning for five minutes when it gradually slipped out of her fist; the thumb was properly and strongly opposed to the fingers."
5. "My child F. early in her second month, strained to lift her head at the sound of any one entering the room; and in her fourth month, after the child had been frequently lifted to a sitting posture by the clasping of her hands around her mother's fingers, the mere sight of fingers extended before her made her grasp at them and 'attempt' to raise herself." J. M. Baldwin, *Mental Development of the Child*, page 370.
6. "In the tenth week she began to turn her head aside in refusal or dislike ———." Milicent Shinn, *The Biography of a Baby*, page 108.
7. "In the tenth week he evinced a desire to sit up in order to see." Kathleen Moore, *Mental Development of a Child*, page 54.
8. "C. was just ten and a half weeks old when he first showed himself capable of lying on his back and turning his head to the side, and even half turning his body also, in order to have a good view of his father moving to a distant part of the room." Jas. Sully, *Studies of Childhood*, page 412.

9. "The other effort of will was sitting up." Three months old. Milicent Shinn, *The Biography of a Baby*, page 110.
10. "I knew one child who at the age of four or five months could not be got to bed without the assistance of several people." Perez, *The First Three Years of Childhood*, page 104.
11. "Fifth month. He pushed a bitter medicine away from him with all his might, but he took wine and eatables with pleasure." F. Tiedeman, *Record of Infant Life*, page 24.
12. "Fifth month. Meat offered with a fork is seized with the hand and carried slowly to the mouth; many times incorrectly, but once properly." Preyer, *The Development of the Intellect*, page 329.
13. "190th day. She grabbed her mother's dress in front to prevent herself being laid down to go to sleep." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 83.
14. "427th day. The last two days and today she has actively rotated her head back and forth to avoid a spoonful of food when she had had enough." Geo. V. N. Dearborn, *Moto-Sensory Development*, page 141.
15. "Nineteenth month. When strangers want to be kissed by the child, he holds off; accordingly he is fastidious in his choice in regard to approach." Preyer, *The Development of the Intellect*, page 306.
16. "In the twentieth month she would cry, 'Ruth walk!' or 'Own self!' if lifted in arms, and pull away her hand, crying, 'No!' if one tried to lead her; ———." Milicent Shinn, *Notes on the Development of a Child*, Nos. 3—4:185.

REFERENCES

1. *Bain, A.* The Emotion and the Will, pp. 303-586; also *The Feelings and the Will*. Fortn., 3: 575-588.
2. *Baldwin, J. M.* Mental Development in the Child and in the Race, pp. 332-408, also 428-451.

3. *Baldwin, J. M.* Imitation. *Mind*, n. s., 3:26-55. Origin of Volition in Childhood. *Sci.*, 20:286-287; see also Infant's Movements, *Sci.*, 19:15-16; and Suggestion in Infancy, *Sci.*, 17:113-117.
4. *Balliet, Thos. M.* Value of Motor Education. *Jour. of Educa.* (Boston), 48:317.
5. *Bosanquet, B.* Will and Reason. *Monist.*, 2:18-30.
6. *Bryan, W. L.* Development of Voluntary Motor Ability. *Am. Jour. of Psy.*, 5:125-204.
7. *Buisson, Ferdinand.* Education of the Will. Report of Commissioner of Educa. for 1902, 1:721-740.
8. *Carpenter, W. B.* Physiology of the Will. *Contem.*, 17:192-217.
9. *Compayre, G.* Intellectual and Moral Development of the Child, pp. 61-95.
10. *Compayre, G.* Development of the Child in Later Infancy, pp. 118-152.
11. *Craig, Anne Throop.* The Development of a Dramatic Element in Education. *Ped. Sem.*, 15:75-81.
12. *Deahl, J. H.* Imitation in Education. Its Nature, Scope and Significance. *Columbia Univ. Contrib. to Philos.* 1900, Vol. 8, No. 1, pp. 7-101.
13. *Donaldson, H. H.* The Education of the Nervous System. *Educa. Rev.*, 9:105-121.
14. *Drummond, W. B.* The Child: His Nature and Nurture, pp. 71-83, 106-119.
15. *DuBois-Reymond, Emil.* The Physiology of Exercise. *Pop. Sci. Mo.*, 21:317-328, 433-444.
16. *Edgar, J.* Individuality and Imitation in Childhood. *Child Study*, 1:12-23, 1908.
17. *Frear, Caroline.* Imitation. *Ped. Sem.*, 4:384-386.
18. *Hall, G. Stanley.* Moral Education and Will Training. *Ped. Sem.*, 2:72-89.
19. *Hall, G. Stanley.* Adolescence, pp. 1:131-236.
20. *Hall, Mrs. W. S.* The First Five Hundred Days of a Child's Life. *Child Study Mo.*, 2:394-407, 526-530.
21. *Halleck, R. P.* Psychology and Psychic Culture, p. 307.
22. *Hancock, J. A.* Study of Motor Ability. *Ped. Sem.*, 3:9-29, 308-313.

23. *Haskell, Ellen M.* Imitation in Children. *Ped. Sem.*, 3: 30-47.
24. *Herford, Caroline.* The Development of the Will Between the Ages of Five and Thirteen. *Paedologist* (London), 3: 75-84.
25. *Jastrow, Jos.* Involuntary Movements. *Pop. Sci. Mo.*, 40: 743-750; 41: 636-643.
26. *King, Irving.* The Psychology of Child Development, pp. 71-131.
27. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 65-88, 129-144.
28. Laughter as a Mode of Expression. *Atlan.*, 59: 427-429.
29. *Marwedel, Emma.* Conscious Motherhood, pp. 158-164, 414-500.
30. *Moore, Kathleen C.* Comparative Observations of the Development of Movements. *Ped. Sem.*, 8: 231-238.
31. *Moore, Kathleen C.* The Mental Development of a Child, pp. 8-44.
32. *Murry, J. Clark.* The Education of the Will. *Educa. Rev.*, 2: 57-68.
33. *Peeke, Margaret B.* The Will and Its Training. *Arena*, 14: 487-494.
34. *Perez, B.* First Three Years of Childhood, pp. 11-22, 90-94, 99-109.
35. *Preyer, W.* Senses and the Will, pp. 188-346. *Mental Development in the Child or Infant Mind*, pp. 48-65.
36. *Preyer, W.* The Imitative Faculty of Infants. *Pop. Sci. Mo.*, 33: 249-255.
37. *Rowe, Stuart H.* Action and Reaction in Primary Schools. *Educa.*, 27: 420-429.
38. *Royce, Josiah.* Imitative Functions and Their Place in Human Nature. *Cent.*, 26: 137-145.
39. *Shepardson, Everett.* A Preliminary Critique of the Doctrine of Fundamental and Accessory Movements, with Bibliography. *Ped. Sem.*, 14: 101-116.
40. *Shinn, Milicent W.* Notes on the Development of a Child, pp. 179-210, 299-424.
41. *Shinn, Milicent W.* The Biography of a Baby, pp. 26-38.
42. *Tanner, Amy E.* The Child, pp. 252-310.
43. *Taylor, A. R.* The Study of the Child, pp. 93-105, 115-123.
44. *Tracy, F.* The Psychology of Childhood, pp. 93-117 (7th Ed.).

CHAPTERS XXIV AND XXV

CHILDREN'S DRAWINGS

The spontaneous drawings of children afford one of the best means of studying the early workings of the child mind. It is surprising that this key to child nature has not received greater attention. A few quite interesting studies have been made, and Sully has given a chapter in his book, "Studies of Childhood," on the subject showing the similarity of the early drawings of children and those of primitive man. These studies are quite valuable, yet they are only beginnings. They show that in their early drawings children are more or less anthropomorphic and usually begin with that part of the subject with which the artists end, that is, with man. Note the artistic evolution of man as seen in the illustrations given by Sully, and account for the order.

Children think in wholes, but while the adult's whole is the man, the child's whole is an ear, an eye or a hand.

At first any scribble or scrawl made by the child will represent to him the object he has in mind. Gradually as he accidentally hits upon a more fortunate stroke which suggests to him an object, it is at once accepted as the proper symbol.

To a child, drawing begins as a gesture language, a means of expression. He draws from memory, not from observation. He sees the head of a boy at a window, he knows the entire boy must be there, and completes the missing part. A model is placed before

him, he glances at it, turns away and draws from his memory an image of it.

One difference between the drawing of a child and those of an adult is that the latter represents artistically an instantaneous photograph, while the former described in a single picture a series of photographs.

Mrs. Louis Maitland, who made a careful study of children's drawings, gives three fairly distinct stages corresponding to different ages. (1) From six to about nine years of age, one of illustration, when children respond eagerly with drawings illustrating scenes of their own lives, or visualize parts of stories told or read. (2) From ten to twelve, when children tho still interested in illustrating mental images (pictures) are far more interested in making sketches of every day objects; (3) From twelve onward, when the whole interest of the child seems directed toward accurate work; to represent with fidelity, geometrical, decorative designs, figures from life casts, landscapes and objects about them. In the first stages the child's spontaneous drawings were quite free from geometrical design, dealing almost exclusively with the pictures of men, women and children, animals, houses and trees, while at fifteen and sixteen geometrical drawings predominate.

From these preliminary studies it seems that we have not been following the order of nature in our teaching of drawing, tho in many instances there has been great improvement. Are the natural tendencies in the child's development right and to be encouraged, or are they wrong and to be held in check or directed by other standards imposed by the philosophy of man? In either case we must know what the natural tendencies are in order to accomplish the best results.

What is the purpose of instruction in drawing—to stimulate and keep alive the imagination, to cultivate a love for the beautiful, to make artists, or to give an additional means of expression? Whatever the purpose; are we succeeding?

PLAN FOR OBTAINING DATA FOR STUDY

Always have age, sex, school, etc., given, and when possible use uniform paper. (1) Tell the children you wish them to make a drawing for you today, something that you may keep. Give them thirty minutes in which to draw anything they like. (2) Another day stick a pencil horizontally thru an apple or a potato and place it on the desk so that the children can see both ends of the pencil, then without any suggestion, have all draw it. Draw a picture of the object yourself and send with the papers. (3) "George, Mary and little Harry were playing in a large room upstairs. The room was filled with all sorts of playthings. Little Harry was still on his rockinghorse in the middle of the room, but George and Mary had stepped to the window to look out. Just then a lady artist passing by in a carriage, noticing the beautiful home and the children at the window, stopped to make a sketch of the place."

After the children have written name, age, etc., on their papers and are ready for drawing, read the story thru to give them a general idea of it. Then tell them to play that they are the artist and to sketch (draw) for you the picture. Reread the story but offer no suggestions. Judging from the different interests of the child in drawing, what plan of instruction should be followed?

What advantage is gained in following nature?

What use can be made of drawing in nature study?

How do you account for children becoming more timid in drawing as they grow older? Why is this so noticeable at the beginning of adolescence?

When would you begin the grammar of drawings?

Should the teaching of drawing precede or follow the teaching of writing? Why?

Judging from the natural interest of the child what are the important steps in the teaching of drawing?

REFERENCES

1. *Baldwin, J. M.* Mental Development in the Child and the Race, pp. 78-99.
2. *Barnes, Earl.* A Study on Children's Drawings. Ped. Sem., 2: 455-463.
3. *Barnes, Earl, and Maitland, Mrs. Louise.* Art of Little Children. (A Condensed Translation of a Study of Children's Drawings. Made by Corrado Ricci in 1887.) Ped. Sem., 3: 302-307.
4. *Barnes, Clifford P.* Child Study in Relation to Elementary Education. Kind. Rev., 19: 396-401.
5. *Brown, E. E.* Editor. Notes on Children's Drawings. Univ. of Cal. Studies.
6. *Brown, E. E.* Art in Education. Proc. N. E. A., 1899, pp. 112-121.
7. *Burnham, Wm. H.* The Hygiene of Drawing. Ped. Sem., 14: 289-304.
8. *Chamberlain, A. F.* The Child. A Study in the Evolution of Man, pp. 173-211.
9. *Clark, Arthur B.* Child's Attitude Toward Perspective Problems. Studies in Educa. (Barnes), 1: 283-295.
10. *Clark, J. S.* Some Observations on Children's Drawings. Educa. Rev., 13: 76-82.
11. *Cook, Ebenezer.* The Methods of Nature is the Archetype of All Methods. Paidologist, 8: 28-35.
12. *Drummond, W. B.* An Introduction to Child Study, pp. 276-280.

13. *Fitz, H. G.* Free Hand Drawing in Education. Pop. Sci. Mo., 51: 755-765.
14. *Gallagher, Marguerite.* Children's Spontaneous Drawings. Northw. Mo., 8: 130-134.
15. *Hart, Mrs. Mary R.* The Child Revealed Through Its Drawings. Northw. Mo., 8: 193-196.
16. *Hart, W. R.* Children's Choice in Pictures. Northw. Mo., 7: 24-29.
17. *Herrick, Mary A.* Children's Drawings. Ped. Sem., 3: 338-339.
18. *Hicks, Mrs. Mary Dana.* Color in Public Schools. Proc. N. E. A. 1894, 906-915.
19. *Hicks, Mrs. Mary Dana.* Art in Early Education. Ped. Sem., 2: 463-466.
20. *Jackson, W. S.* Representative Expression in Nature Study. Educa. Rev., Oct., 1895, 10: 248-261.
21. *Lowd, Edna B.* Object Drawing. Proc. N. E. A. 1907, pp. 843-848.
22. *Luckey, G. W. A.* Teaching Drawing. Northw. Mo., 8: 185.
23. *Lukens, H. T.* A Study of Children's Drawings in the Early Years. Ped. Sem., 4: 79-110.
24. *McCormack, T. J.* Brush Work and Inventional Drawing. Open Court, Chicago, 15: 30-42.
25. *McDermott, Louisa.* Favorite Drawings of Indian Children. Northw. Mo., 8: 134-137.
26. *Maitland, Mrs. Louise.* Notes on Eskimo Drawings. Northw. Mo., 9: 443-450.
27. *Maitland, Mrs. Louise.* Art With Young Children, Earl Barnes' Studies. 1: 24, 63, 105, 155, 180, 223, 265, 338.
28. Notes on Children's Drawings. Ped. Sem., 1: 445-447.
29. *O'Shea, M. V.* Children's Expression Through Drawing. Proc. N. E. A. 1894, pp. 1015-1023; also Some Aspects of Drawing. Educa. Rev., 14: 263-284.
30. *Sully, J.* The Young Draughtsman. In Studies in Childhood, pp. 331-398.
31. *Tanner, Amy E.* The Child, pp. 373-392.
32. *Tracy, F.* The Psychology of Childhood, pp. 166-179 (7th Ed.).
33. *Volk, Douglas.* Public School Art Instruction. Northw. Mo., May, 1899, 9: 396-400.

CHAPTERS XXVI AND XXVII

THE BEGINNING OF LANGUAGE

In a former lesson we referred to indications of thinking without words; however, the thot activity possibly without language is of the crudest sort. Language, speech, is one of the distinguishing marks between human and animal intelligence. Show the meaning and importance of language in the evolution of thot. Will the study of the language of children furnish a clue to the origin of language in the race? How can a study of children's acquisition of language aid teachers?

(1) **The Babbling, or Mamma Period.** Tracy is no doubt right in stating that the early utterances of the child have no psychic significance. From the first spontaneous sound to the complete sentence, the vocal expressions of the child pass thru a series of advancing stages comparable to movement. For instance, the first cry of the infant is doubtless the result of an impulsive movement due to the adjusting of nervous energy for the control of respiration. It then becomes a pure reflex with no variation, but a little later (2nd month) it takes on instinctive proportions; beginning to differentiate and varying with kind and degree of stimulus. Later still the cry may result from purely ideational movements.

Likewise vocal sounds resulting from pleasurable feelings, such as cooing, babbling, etc., pass thru similar stages. During this period, covering the first six

or eight months, the child has used in its vocal utterances nearly all the sounds used later in speech. It is the unconscious practice period of the voice and doubtless adds much to its later flexibility. By the close of this period the child forms correctly many syllables. These he reduplicates as ma-ma-ma, pa-pa-pa, ba-ba-ba, etc., with seeming delight; probably due in part to physiological inertia and in part to the beginning of self imitation. What is the order of the appearance of the vowels and consonants? Upon what does the order depend?

(2) **The Beginning of Sound Imitation and Gesture Language.** During the second half of the first year the child makes progress in imitating sounds. Many words, such as boo, coo, moo, mew, quack, bow-wow, bang, illustrate this onomatopoetic tendency. During this period the child, thru imitation and invention, has developed quite a gesture language by which he is able to make his wants known. The cry as well as the babble has become quite expressive thru differentiation. To the sound-play of the last period have been added as many new elements, but the voice is beginning to conform to environment. Several inventive, but few or no conventional words are correctly used before the close of the first year. How do you account for what is known as "child language"? Explain and account for the secret language of children.

(3) **The Acquisition and Understanding of Words.** At the beginning of the second year two important processes of the child's life are taking place—learning to walk and learning to talk. Few words are correctly used before the child begins to walk, but on the advent of walking there seems to be a temporary interruption

of speech processes. Why? Note the relation between the rise of speech and righthandedness.

The child's understanding of words precedes the use of them. Many commands are now intelligently performed; as, "come to papa," "go to mamma," "bring the ball," etc. It is interesting to note the many transformations that the child makes of our words, and the relation of these changes to the law of adult phonetic changes. First, perhaps in the shortening of the word, as "da" for dance, "ka" for candy, "hanky" for handkerchief. Next he holds to the accent and the right number of syllables but changes the form as "no-bella" for umbrella, "ta-ta" for papa; then comes the omission of consonants difficult to make as "ook" for look, "tair" for stairs, "neeze" for sneeze, followed by substituting one consonant for another; as, "mouf" for mouth, "Berfa" for Bertha, "dis" for this, "dood" for good, etc.

(4) **The Stage of Sentence Building.** At first the sentence is contained in the single word of the child as when "chair" means put me in the chair; but from the 18th to the 24th month, differing much in children, there is a transition from the single word to the abridged sentence. Note the many inconsistencies in the form and use of words and the difficulty this makes in the learning of a language.

Quotations, from three-year-old children: "I will undress my doll and put it to sleep;" "Will the man undress the chicken for us;" "I will undust the book and put it away;" "I will unpeel the apple for you;" "Oh mamma, Look! the people car is coming," meaning the passenger car; "Mamma, give me a slice of paper to write;" "Mamma, may I spatter the corn," meaning to sow; "We are waiting for Frances to get

her **lamers**," meaning crutches; "Do you know what I am fixing my mighty for, mamma? So when I am **bared** I can get into it-quicker;" "I don't want a baked apple, mamma, I want a **rawed** apple;" "Mamma, this waists **tights** me when I sit down, but don't **tight** me when I stand up" (the band was too tight); "We had a nice, clean **bye-bye**," meaning a nice or pleasant walk; "Oh my hands are just burning **cold**." Many more odd expressions might be added. This period will be further discussed in class.

REFERENCES

1. A Case of Arrested Speech Development. *Child Study Mo.*, 2: 665-674.
2. *Baldwin, J. M.* The Origin of Righthandedness. *Sci.*, 16: 247; also, *Mental Development in the Child and the Race*, pp. 409-427.
3. *Barker, Henry J.* Language of Children. *Spec.*, 62: 302-303 (Review).
4. *Buckman, S. S.* Speech of Children. *19th Century*, 41: 793-807. *Spec.*, 78: 657-659.
5. *Chamberlain, A. F.* Notes on Indian Children's Language. *Am. Anthropologist*, 4: 237-242; 6: 321-322; also *The Child and Childhood in Folk Thought*, pp. 248-269.
6. *Chamberlain, A. F.* The Child, a Study in the Evolution of Man, pp. 107-171.
7. *Chamberlain, A. F.* Acquisition of Written Language of Primitive Peoples. *Am. Jour. Psych.*, Vol. 17: 69-80.
8. *Chamberlain, A. F., and Isabel C.* Studies of a Child. *Ped. Sem.*, 11: 264-291, 452-483; 16: 64-103.
9. *Chrisman, O.* Secret Languages of Children. *Child Study Mo.*, 2: 202-211; *Northw. Mo.*, 8: 187-193, 375-379, 649-651; *Cent.* 34: 54-58.
10. *Compayre, G.* Development of the Child in Later Infancy, pp. 62-117.
11. *Conradi, Edward.* Children's Interest in Words, Slang, Stories, etc. *Ped. Sem.*, 10: 359-404.

12. *Conradi, Edward.* Psychology and Pathology of Speech Development in the Child. Ped. Sem., 11: 328-380.
13. *Cooley, Chas. H.* A Study of the Early Use of Self-Words by a Child. Psych. Rev., 15: 339-357.
14. *Dewey, J.* The Psychology of Infant Language. Psych. Rev., 1: 63-66.
15. *Drummond, W. B.* The Child: His Nature and Nurture, pp. 103-106.
16. *Drummond, W. B.* An Introduction to Child Study, pp. 256-276.
17. *Hale, Harlow J.* The Vocabularies of Three Children of One Family to Two and a Half Years of Age. Psych. Studies, Univ. of Minn., July, 1900, No. 1, pp. 70-117.
18. *Hall, Mrs. W. S.* First Five Hundred Days of a Child's Life. Child Study Mo., 2: 586-608.
19. *Holden, E. S.* On the Vocabularies of Children Under Two Years of Age. Trans. Am. Philo. Assn., 1887, pp. 58-68.
20. *Howard, F. E.* The Child Voice. Proc. N. E. A. 1897, pp. 784-790.
21. *Kidd, D.* Savage Childhood, pp. 204-206.
22. *Kirkpatrick, E. A.* A Vocabulary Test. Pop. Sci. Mo., 70: 157-164.
23. *Kirkpatrick, E. A.* How Children Learn to Talk. Science (Sept. 25, 1891), 18: 175-176; also A Promising Line of Child Study for Parents. Trans. Ills. Soc. for Child Study, 3: 179-182.
24. *Kirkpatrick, E. A.* The Fundamentals of Child Study, pp. 221-240.
25. *Lukens, H. T.* Preliminary Report of the Learning of Language. Ped. Sem., 3: 424-460.
26. *Marwedel, Emma.* Conscious Motherhood, pp. 210-218, 512-540.
27. *Mateer, Florence.* The Vocabulary of a Four Year Old Boy. Ped. Sem., 15: 63-74.
28. *Moore, Kathleen.* Mental Development of the Child, pp. 115-145.
29. *Mulford, H. J.* The Throat of the Child. Educa. Rev., 13: 261-272.
30. *Noble, E.* Child Speech and the Law of Mispronunciation. Educa., 9: 44-52, 117-121, 188-194.

31. *O'Shea, M. V.* Linguistic Development and Education.
32. *Perez, B.* First Three Years of Childhood, pp. 234-262.
33. *Pollock, F.* An Infant's Progress in Language. *Mind*, 3: 392-401.
34. *Preyer, W.* Development of the Intellect, pp. 33-188. *Infant Mind*, pp. 84-122.
35. *Salisbury, A.* A Child's Vocabulary. *Educa. Rev.*, 7: 289-290.
36. *Sanford, E. C.* Language of Children. *Ped. Sem.*, 1: 257-260.
37. *Shinn, Milicent W.* The Biography of a Baby, pp. 86-89. 137-140, 156-159, 169-171, 176-212, 224-247.
38. *Smith, Margaret K.* The Psychological and Pedagogical Aspects of Language. *Ped. Sem.*, 10: 438-458.
39. *Stephenson, A.* The Speech of Children. *Science*, 21: 118-120.
40. *Street, J. R.* A Study of Language Teaching. *Ped. Sem.*, 4: 269-293.
41. *Stoner, Mrs. Winifred S.* Mental Education, pp. 27-41.
42. *Sully, James.* Studies of Childhood, pp. 133-190. *Baby Linguistics*. *Eng. Illust. M.*, 2: 110-118 (1884-1885).
43. *Taine, M.* The Acquisition of Language of Children. *Mind*, 2: 252-259.
44. *Tanner, Amy E.* The Child, pp. 311-338.
45. *Taylor, A. R.* The Study of the Child, pp. 76-92.
46. *Tolstoi, L.* Boyhood, Adolescence, Youth.
47. *Town, Clara Harrison.* An Infantile Stammer (baby talk) in a Boy of Twelve Years. *Psych. Clinic*, 1: 10-20.
48. *Tracy, F.* Language of Childhood. *Am. Jour. of Psych.*, 6: 107-138; and *Psych. of Childhood*, pp. 114-160 (7th Ed., pp. 118-165).
49. *Warner, F.* Studies of Children, p. 120.
50. *Whipple, Guy M. and wife.* The Vocabulary of a Three Year Old Boy. *Ped. Sem.*, 16: 1-22.

CHAPTER XXVIII

CRYING AND LAUGHING

We become acquainted with children thru a study of their activities. Every movement, every action, has weight; nothing can be omitted, only the nature and order of the study remain a matter of doubt. Crying and laughing are important activities. Their value in the acquisition of language—furnishing the first means of vocal expression—has already been mentioned; but they are of equal importance in furnishing a key to the feelings and emotions.

Crying usually begins the activities of the new born, and precedes laughing by many weeks, which indicates that pain precedes pleasure as a motive. Crying does not always mean pain. In infancy sex seems to have no influence on crying, but in youth and adult life the difference due to sex is quite marked. Why? There is also a racial as well as an individual difference in crying and laughing. Why do we cry or laugh? Does crying and laughing indicate weakness or strength of character? Should children be permitted to cry and laugh at will, or should we try to prevent the one or both? What is the proper treatment?

The following outline for the study of crying and laughing is for the most part a condensation of a similar outline by Dr. G. Stanley Hall: Give a careful description of a cry, whether mild or violent, whether in an infant, a child, or in yourself. Give age, sex, health, nationality. First symptoms, at corners of

mouth, lips, eyes, corrugations of forehead. Which of these symptoms occur first? Changes in breathing, movement of nostrils, efforts of restraint, position of body, head and arms, and hands. Does he sit, lie down, stand still, stop or slow up in walking, hold things or drop them. Is there tension or relaxation of muscles? What are the premonitory symptoms; also mental, moral, physical reactions, after a fit of crying? Are there tears, sighing, sniffing? Indicate vocal sounds used: Length, pitch, stress, variation, rhythm, number, internal, beginning, ending etc. Causes of crying. Are attacks periodical? Advantages of crying. What differences in a cry for effect and one for real suffering or fright? What is the best treatment?

Describe the phenomena of laughing, as of crying. What are the characteristic differences between crying and laughing? Note the cases where crying passes into laughing and vice versa.

REFERENCES

1. *Bliss, Sylvia H.* The Origin of Laughter. *Am. Jour. Psych.*, April, 1915, p. 236.
2. *Borgquist, Alvin.* Crying. *Am. Jour. of Psych.*, 17: 149-205.
3. *Bruce, H. Addington.* Why Do We Laugh. *Outlook*, 104-816-821, August 9, 1913.
4. *Carus, Paul.* Philosophy of Laughter. *Minist.*, 8: 250-272.
5. *Christopher, W. S.* Three Crises in Child Life. *Child Study Mo.*, 3: 324-335.
6. *Dearborn, G. V. N.* The Nature of the Smile and the Laugh. *Science*, n. s., 11: 851-856.
7. *Hall, G. Stanley, and Allin, Arthur.* The Psychology of Tickling, Laughing and the Comic. *Am. Jour. of Psych.*, 9: 1-41.
8. Laughter as a Mode of Expression. *Atlan.*, 59: 427-429.

9. *Mellinand, M. Camille.* Psychological Cause of Laughter. Pop. Sci. Mo., 53: 398-402; Public Opinion, 25: 48-49; also in Chautauquan, 21: 195-199.
10. *Morris, Lewis.* The Disuse of Laughter. Forum, 24: 319-324.
11. *Patrick, G. T. W.* The Psychology of Laughter. In The Psychology of Relaxation, pp. 99-140.
12. *'Sidis, Boris.* Psychology of Laughter.
13. *Sully, Jas.* The Laughter of Savages. International Mo., 4: 379-402.
14. *Sully, James.* An Essay on Laughter. Its forms, its causes, its development and its value. Longmans, Green & Co., N. Y., pp. 441.
15. *Wiltse, Sara E.* A Study of Laughter. Northw. Mo., 8: 142-143.

CHAPTER XXIX

CHILDREN'S INTERESTS

As is well known, children have greater interests in some things than in others. The subjects that interest a child at one age may not interest him at another or vice versa. A few observations are sufficient to convince one of the changing interests of children, whether seen in their plays, their studies, their collections, or their questions and answers. For the first few years the child seems to be influenced most by stimulation from within. The surrounding objects furnish but little attraction unless they in some way supply this inner need. The physiological changes due to growth furnish the dominant stimulus to action.

The child begins to live over in a brief way the essential experiences of the race. Thru the overflow or outcropping in the child of these primitive instincts and racial experiences we obtain a view of the unwritten history of the race. During these early years the child lives much of the time in a sort of invisible make-believe-world influenced more by inheritance than by environment. Altho instinct results from changes from within it always requires an external stimulus to set it off. To what is the changing interest of the child due? Is there sufficient uniformity of interest in children to be of value in determining courses of study? How can the natural interests of children be ascertained? How may these interests be turned to the advantage of the child? Can any teach-

ing be successful which does not conform to the natural interests of the child? To answer these questions we need extended observations. The data will be interesting and the results helpful.

Many important studies have already been made covering different phases of children's interests. "The Contents of Children's Minds" by G. Stanley Hall, and "Children's Definitions" by Earl Barnes and Edw. R. Shaw, are of special value. Use, action, larger term, substance, place, form, color, is the order according to Barnes of "Children's Interest in Things." I wish to use the following list of words suggested by Prof. Barnes for obtaining material for further study. Teachers willing to assist can use the list instead of a spelling or composition lesson. When children are ready to begin, read: What is glass, bread, doll, marble, silk, bottle, orange, ice, grass, shell, finger, cat, seed, wool, picture, fire, cloud, summer, river, the earth, cow, star, pond, garden, iron, mouse, water, sky, diamond, sun, boat, wagon?

Offer no further directions or suggestions. Papers should contain name, age, grade of child and name of teacher.

ORDER OF INTEREST IN LITERATURE

Note the order and growth of children's interest in literature;—wonderland, myth, fairy tales, folk-lore, adventure, hero tales, love-songs, biography, aesthetics, ethics, philosophy, science. Make a list of ten or more best books for children from five to eight, eight to twelve, twelve to sixteen, sixteen to twenty.

The following books and stories were read and appreciated by two children of nine and ten. They had not yet entered public schools and were free to

select at will, in intervals of rest from play or other activities, from a much larger children's library:—

Mother Goose.	Kirby: Beauty and the Beast.
Æsop's Fables.	Red Riding Hood.
Puss-in-Boots.	Babyland Magazine.
Jack and the Bean Stalk.	Cinderella.
Seven Little Sisters.	Jack the Giant Killer.
Andrew's Aunt Martha's Cup-board.	Andrews: Each and All.
	Sleeping Beauty.

THE FIVE CENT CLASSICS

Story of the Pilgrims.	Legends of the Springtime.
Story of Louise M. Alcott.	Story of Pocahontas.
Story of Cyrus M. Field.	Story of Robert L. Stevenson.
Story of Norsemen.	Story of Audobon.
Story of the Boston Tea Party.	Alice in Wonderland.

King of the Golden River, Ruskin; Oldtime Stories Retold, Smythe; Water Babies, Kingsley; Hiawatha, Longfellow; Lullaby Land, Eugene Field; Bird's Christmas Carol, Kate Douglas Wiggin; Captain January, Richards; Old Greek Stories, Baldwin; The Golden Fleece, Smythe; Stories of Rome, Guerber; Stories of Great Americans, Eggleston; Fifty Famous Stories Retold, Baldwin; Robinson Crusoe, DeFoe; Heroic Deeds, Johnnot; Pilgrim's Progress, Bunyan; Wonder Book and Tanglewood Tales, Hawthorne; Plants and Their Children, Dana; Rab and His Friends, Brown; Golden Rod Books, University Publishing Company, New York; Bible Stories, Yonge; Old Stories of the East, Baldwin; Black Beauty, Sewell; Little Lord Fauntleroy, Burnett; Ten Boys, Andrews; Five Little Peppers, Sidney; Story of the Illiad, Church; Story of Troy, Clarke; Story of Ulysses, Cook; Stories of Animal Life, Holder; Matka and Kotik, Jordan; Brooks and Brook Basins, Frye; Gods and Heroes, Francillon; Round the Year in Myth and Song, Holbrook; The Children of the Bible, The Colportage Library; Myths of Greece, Guerber.

REFERENCES

1. *Arnold, Felix.* The Psychology of Interest. Psych. Rev., 13: 221-238, 291-315.
2. *Barnes, Mrs. M. S.* Studies in Historical Method, pp. 57-105.

3. *Barnes, Earl.* A Study on Children's Interests. *Barnes' Studies in Education*, 1: 203-212.
4. *Barnes, Earl.* The Child's Favorite Study in the Elementary Curriculum. *Proc. N. E. A.* 1903, pp. 420-425.
5. *Barnes, Earl.* A Study on the Children of a State. *Kindergarten Magazine*, 16: 26-31.
6. *Binet, A.* Perceptions d'enfante. *Revue Philosophique*, 30: 68-81, 582-611.
7. *Brown, E. E.* A Study of Children's Interest. *Trans. Ill. Soc. for Child Study*, Vol. I, No. 2, pp. 73-76.
8. *Buckbee, Anna.* Fourth School Year. (A. Flanagan & Co., 1904.)
9. *Burk, Caroline.* The Collecting Instinct. *Ped. Sem.*, 7: 179-207.
10. *Burnham, Wm. H.* Attention and Interest. *Am. Jour. Psych.*, 19: 14-18.
11. *Cash, Miss K. G.* Children's Pets, a Side Study. *Barnes' Studies in Education*, 2: 100-107.
12. *Chambers, Will Grant.* Why Children Play. *Proc. N. E. A.* 1909, pp. 720-726.
13. *Davis, Anna.* Children's Interest in the Casual Idea. *Child Study Monthly*, 2: 226-232.
14. *Dawson, Geo. E.* Children's Interest in the Bible. *Ped. Sem.*, 7: 151-178.
15. *Drummond, W. B.* An Introduction to Child Study, pp. 235-255.
16. *Du Bois, Patterson.* The Things That Abide. (Children's Interests.) *Kind. Rev.*, 18: 321-324.
17. *Ellis, Havelock.* The Psychology of Yellow. *Pop. Sci. Mo.*, 68: 456-463.
18. *Foster, W. E.* Some Successful Methods of Developing Children's Interest in Good Literature. *Lib. Journ.*, 20: 377-379.
19. *Galbreath, Louis H.* The Study of Children by Teachers. *Northw. Mo.*, 8: 541-544.
20. *Grudzinska, Anna.* A Study of Dolls Amongst Polish Children. *Ped. Sem.*, 14: 384-390.
21. *Guillet, Cephas.* A Study in Interests. *Ped. Sem.*, 14: 322-328.

22. *Hall, G. Stanley.* Contents of Children's Minds. *Ped. Sem.*, 1: 139-173; also Reprints, by E. L. Kellogg & Co.
23. *Hall, G. Stanley.* Story of a Sand Pile. *Ped. Sem.*, 1: 229-232.
24. *Hall, G. Stanley.* Children's Collections. *Ped. Sem.*, 1: 234-237.
25. *Hall, G. Stanley, and Smith, Theodate L.* Curiosity and Interest. *Ped. Sem.*, 10: 315-358.
26. *Hoffman, L. W.* The Pedagogical Value of Mediate Interest. *Jour. of Ped.*, 16: 49-55.
27. *Kent, Ernest B.* The Constructive Interest of Children. (Columbia Univ., N. Y., 1903, pp. 78.)
28. *King, Irving.* The Psychology of Child Development, pp. 154-221.
29. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 168-177, 239-242.
30. *Kratz, H. E.* A Study of Pupil's Preferences. *Northw. Mo.*, 8: 143-147; also Studies and Observations in School-room, Chap. I.
31. *Lawrence, Isabel.* Children's Interest in Literature. *Proc. N. E. A.*, 1899, pp. 1044-51.
32. *Luckey, G. W. A.* Children's Interests. *Northw. Mo.*, 7: 67-69, 96-98, 133-134, 156-158, 193-195, 221-223, 245-248, 278-279, 306-309, 335-337; *Journ. of Educa.* (Boston), 45: 223-4.
33. *McMillan, Margaret.* Early Childhood, pp. 98-112.
34. *Marsh, Mabel A.* Children and Animals. *Barnes' Studies in Education*, 2: 83-99.
35. *Monroe, Will S.* Vocational Interests of Children. *Educa.* 18: 259-261.
36. *Monroe, Will S.* Tone Perception and Music Interest of Young Children. *Ped. Sem.*, 10: 144-146.
37. *O'Shea, M. V.* Interests in Childhood. *Proc. N. E. A.*, 1896, pp. 873-881.
38. *St. John, Ed. P.* A Genetic Study of Veracity. *Ped. Sem.*, 15: 246-270.
39. *Shaw, Edward R.* A Comparative Study on Children's Interests. *Child Study Mo.*, 2: 152-167.
40. *Starke-Jones, H. R.* Interest and the Child. *Child Study*, 1: 38-47, 1908.

41. *Starr, Laura B.* The Educational Value of Dolls. Ped. Sem., 16: 566-567.
42. *Tanner, Amy E.* The Child, pp. 231-251.
43. *Thayer, Alice.* A Study of Children's Interest in Flowers. Ped. Sem., 12: 107-140.
44. *Trask, Bertha M.* What One Baby Learned in a Summer. Kindergarten Magazine, 15: 377-380.

CHAPTER XXX

METHODS OF CHILD STUDY

Everyone will admit the importance of having a good plan for successful effort in any direction. For this reason a consideration of the more important methods used in child study is of interest to those who wish to take up the subject. It is difficult, however, to classify the methods, since they vary according to the environments and personal equations of the investigator. A few of the more typical methods may be given as follows: (a) First, the plan used by E. E. Russell of the Worcester, Mass., Normal School. The students are directed to make careful observations of the various activities of children which come under their notice. An accurate record of these observations, minus inferences, is kept, properly labeled, and filed away for future use in class, or individual study. The main object of this plan is to direct the attention of the student to the personality of the child, and to enable him to give accurate pen pictures of what he sees. This method varies, of course, with the advancement of the student from the mere recording of observations to a careful study of similar activities in many children. It may be designated the observational or collective method, and has many commendable features. It is one of the best methods for the teacher, especially so, if she is not familiar with experimental psychology.

(b) In the second place, we have the method seen

in much of the work by Pres. Hall of Clark University, and in most of the work of Professor Barnes, formerly of Stanford University. It is frequently called the questionnaire method. It is in the nature of statistical studies and consists of gathering data under similar conditions from large numbers of children differing in age, nationality, environment, etc. The material is carefully collated with the thot of determining thru large general averages some basic principles for action. This method differs from the former principally in **the manner of collecting and collating the data.** By means of carefully prepared syllabi covering single traits like anger, fear, play, ambition, lines of interest, drawing, etc., teachers and parents thruout the country are interested in gathering data, which are classified by the student as indicated. This method, as will be seen, is valuable in mapping out general tendencies and preparing the way for more specific studies to follow later on. It is the method most frequently pursued by departments of education, and in combination with the former plan furnishes the most promising method for the teacher.

(c) In the third place we have the method used so successfully by Preyer, Taine, Darwin, Miss Shinn, Mrs. Hogan, Mrs. Winifred Hall, and others, in which the various activities of a single child are carefully observed and recorded, and generalizations reached regarding the order of development. These observations generally extend over several years and to be valuable to others require intelligence and patience on the part of the investigator. It is the method more often used by intelligent parents, as it is necessary to have continuous access to the child being studied. This was one of the first methods used in child study

and has proved helpful to science. It is known as the individual method and is best suited to the specialist.

(d) Next, we have the method of child study more frequently used by psychologists, and illustrated by the studies of Dr. Scripture, Patrick, Wolfe, Thorndike, Judd, Whipple, and others. It consists in an extended series of experiments with specially devised apparatus, on few or many children varying in age, sex, etc. Such problems as attention, memory span, recreation time, sensibility, fatigue, etc., are considered and the material used for comparative study. In so far as the child's mind may yield to direct experimentation, this method offers the most accurate results, but it is the method of the scientist and should be used only by experts. It is known as the scientific or laboratory method. These four methods, either singly or in combination, represent fairly well the most important modes of approach in the study of children. But they do not represent the kind of work offered in the different courses of child study. For instance, in some institutions the student is immediately set to work in making direct observations on children; in others he begins by recording reminiscences of his own childhood, which compared with similar activities of children, furnish direction for important syllabi; again he begins by making a study of the literature of the subject; or, as in this institution, after preparation in experimental psychology, the student spends the first semester in the study of the important literature on individual development and its pedagogical significance. Some observations on children are made, but original work is not expected in the introductory course. It is only in the following course entitled

Experimental Education that students begin investigation and independent, original study of children. This thoro preparation before attempting original work in child study has many advantages when we consider the importance and delicacy of the material upon which we must experiment. Child Study, as thus presented, affords as much culture value as any other subject and is taken by many students who have no thot of becoming teachers, tho the course is primarily intended for teachers.

Note and compare the best studies made by the different methods described above. Which method has given best results? Why?

Make a list of the best books, monographs, and periodicals of child study that would furnish the nucleus of an excellent child study library. In addition to the references found in the Outlines of Child Study, some help may be obtained from the articles, "The Best Works on Child Study," by G. W. A. Luckey, *Northw. Mo.* 1897, 7:48; and the Bibliography of Child Study by Louis N. Wilson, published annually in the Pedagogical Seminary, Clark University, Worcester, Mass. Examine also recent child study literature.

REFERENCES

1. *Baldwin, J. M.* New Methods of Child Study. *Sci.*, 21: 213-214.
2. *Barnes, Earl.* Methods of Studying Children. *Barnes' Studies in Educa.*, 1: 5-14.
3. *Barnes, Earl.* A Study Based on the Children of a State. *Proc. N. E. A.*, 1903, pp. 754-759.
4. *Barus, Annie H.* Methods and Difficulties of Child Study. *Forum*, 20: 113-119, Sept., 1895.
5. *Buckbee, Anna.* Methods of Teaching Child Study in Normal Schools. *Proc. N. E. A.*, 1904, pp. 787-790.

6. *Burnham, Wm. H.* A Scheme and Classification for Child Study. *Ped. Sem.*, 2: 191-198.
7. *Burnham, Wm. H.* Scientific Study of Children. *Proc. N. E. A.*, 1908, pp. 908-913.
8. *Chambers, Will Grant.* Questionnaire Methods of Child Study. *Proc. N. E. A.*, 1904, pp. 762-770.
9. *Claparède, Ed.* Experimental Pedagogy, pp. 209-320. Intellectual Fatigue.
10. *Clouston, T. S.* Child Study from the Medical Point of View. *Paidologist*, 5: 66-77.
11. *Drummond, W. B.* Child Study: Preparation, Difficulties and Dangers. *Paidologist*, 5: 22-32.
12. *Drummond, W. B.* An Introduction to Child Study, pp. 69-108.
13. *Grudzinska, Anna.* A Bibliography of Child Study in Poland. *Ped. Sem.*, 12: 97-98.
14. *Hall, G. Stanley.* Child Study at Clark University, An Impending New Step. *Am. Jour. of Psych.*, 14: 96-106.
15. *Hancock, J. A.* The Observations of School Children. *Ped. Sem.*, 8: 291-340.
16. *Lee, F. S.* Nature of Fatigue. *Pop. Sci. Mo.*, 76: 182-195.
17. *Luckey, G. W. A.* Methods Pursued in Child Study. *Northw. Mo.*, 7: 33-35.
18. *Luckey, G. W. A.* Brief Survey of Child Study. *Northw. Mo.*, 7: 2-3.
19. *Lukens, H. T.* Mental Fatigue. *Am. Phys. Ed. Rev.*, 4: 19-29, 131-135.
20. *McDougall, W.* The Conditions of Fatigue in the Nervous System. *Brain*, 32: 256-268.
21. *Marsh, Harriet A.* Report of Child Study. 57th Annual Rep. Bd. of Educa., Detroit, Mich., 1900.
22. *Monroe, Will S.* Notes on Child Study in Europe. *Ped. Sem.*, 8: 510-514.
23. *Monroe, Will S.* Typical Child Study Methods at the St. Louis Exhibit. *Proc. N. E. A.*, 1904, pp. 759-762.
24. *Moore, Kathleen C.* The Mental Development of a Child, pp. 1-7.
25. *Mosso, A.* Fatigue. *Eng. Trans.*, New York, 1904.
26. *Offner, M.* Mental Fatigue. *Eng. Trans.*, Baltimore, 1911.

27. *Palmer, Luella A.* Method of Child Study in the Kindergarten. Proc. N. E. A., 1904, pp. 794-797.
28. *Spaulding, F. E.* The Teacher's Practical Application of the Results of Child Study. Jour. of Ped., 16: 34-42.
29. *Tanner, Amy.* The Child, pp. 10-14.
30. *Thorndike, E. L.* The Study of Children. Teacher's College Record, 2: 165-175.
31. *Warner, F.* The Study of Children, pp. 52-136.
32. *Wiltse, Sara E.* A Preliminary Sketch of the History of Child Study in America. Ped. Sem., 3: 189-212.
33. *Winchester, Myra H.* Comparison of Methods and Results in Child Study. Proc. N. E. A., 1904, 791-792.
34. *Young, Sara.* An Investigation Circle. Paidologist, 6: 33-35.

CHAPTER XXXI

FATIGUE

Chapter 31 is devoted to Fatigue as seen in the child in the early school activities. If time will permit three other studies might be taken up with profit; the application of the results of child study to the teaching of Reading, Writing, Music.

Continued activity of any kind leads to fatigue. Rapid metabolism consumes energy and gives off toxic products faster than they can be eliminated, producing fatigue.

Fatigue is both subjective and objective, mental and physical, depending upon whether the functional inefficiency is due to disturbance in the one field or the other. The younger the child the sooner it becomes fatigued thru effort. The ordinary activities of the day reduces the supply of nervous energy and increases the amount of fatigue. When only the surplus supply of energy has been used we have the state known as normal fatigue, which is not an unhealthy condition. But by prolonging the labor (overexertion) we reach a state of exhaustion, pathological fatigue, a breaking down of nerve centers which is very injurious to health and development. Individuals differ greatly in fatiguability. The nature of the work, the time of day, the strength and duration of the effort, the state of health, the emotional tone, the environment, interest, will and understanding all tend to modify the amount of fatigue. Owing to the complex condition of fatigue it is difficult to analyze.

There have been a number of interesting studies to test the varying amount of fatigue in school children. Thru these studies two methods of procedure have been used; the physiological and psychological. The former uses the dynamometer, the ergograph, aesthesiometer, algometer, ataxiagraph, spirometer, plethysmograph, sphygmograph and many other instruments used in measuring changes in physical efficiency. The psychological method makes use of various mental tests thru memory, attention, computation, dictation, rapidity and accuracy of reading, writing, etc.

In an article summing up the study of such measurements of fatigue Dr. G. M. Whipple says: "The net outcome of these experimental investigations is the establishment of a number of fairly well-defined laws of fatigue. Much remains to be done, but we know that individuals fall into four fairly distinct types of fatiguability; that fatiguability is a function of age; that sixty minutes is too long a lesson period for the average school child; that the forenoon are more favorable than the afternoon hours; that formal school work should not exceed five hours per day or twenty-five hours per week; that home work should be reduced to the minimum and arranged so that it will not exact intensive application; that short pauses, when filled with free play out of doors, but not with gymnastics, are invaluable offsets of fatigue; that the pauses should increase in frequency and in length as the work continues; that a pause, even of short duration, may work disadvantageously when it interrupts easy work of relatively long duration; that the noon intermission often fails to fulfill its desired recuperative effect because the afternoon work begins before digestion is sufficiently advanced; that pupils should obtain from

nine to eleven hours of sound sleep;—a desideratum all too frequently unfulfilled—that adequate sleep is the best protection against overburdening; that a change of work does not add positively to the store of energy, but may operate advantageously by setting aside ennui; that exercise, especially in the form of free play, consumes energy, yet is of benefit because it stimulates metabolism and accelerates the removal of waste products; that gymnastics constitute a positive source of fatigue for many pupils; that the fatiguability of school work is partly a function of the subject, partly of the method of instruction, and partly of the teacher; that individual instruction is more fatiguing than class instruction; that the school program should be planned to bring the hard subjects “early, to alternate hard and easy work, and to insert frequent and progressively longer pauses.”

What is the cause of fatigue? Why does the young child fatigue more easily than the old? Is fatigue specific and local or general? Does a change of activity rest? Why? Does the present school work tend to overburden children and youth? Explain. How can education be made stimulating and healthful?

REFERENCES ON FATIGUE

1. *Adersen, H.* Eine asthesiometrische Untersuchung. *Zeitschrift für schulgesundheitspflege*, 1904, 17: 540-543.
2. *Baker, Smith.* Fatigue in School Children. *Educa. Rev.*, 15: 34-39.
3. *Bellei, Guiseppe.* An Hour's Work Done by School Children. *Educa. Rev.*, 25: 364-386.
4. *Bergstrom, J. A.* An Experimental Study of Some Conditions of Mental Activity. *Am. Jour. Psych.*, 6: 247-273.
5. *Blake, Isabella T. M.* Fatigue. *Jour. of Ped.*, 12: 319-325.

6. *Bolton, Thaddeus M.* The Fatigue Problem. *Jour. of Ped.*, 16: 96-123.
7. *Burnham, W. H.* Fatigue. *Ped. Sem.*, 2: 13-17.
8. *Burnham, W. H.* Recent Studies in Fatigue in Relation to the Need of Oxygen. *Proc. of Fifth Cong. Am. Sch. Hygiene Association.*
9. *Claparède, Ed.* Experimental Pedagogy. Trans. by Mary Louch and Henry Holman. Chap. V. Intellectual Fatigue.
10. *Dresslar, F. B.* Fatigue. *Ped. Sem.*, 2: 102-106.
11. *Drummond, W. B.* An Introduction to Child Study, pp. 172-193.
12. *Dukes, Clement.* Work and Overwork. *Educa. Rev.*, 6: 415-416. (A Review.)
13. *Ellis, A. C., and Shipe, Maud Margaret.* A Study of the Accuracy of the Present Methods of Testing Fatigue. *Am. Jour. of Psych.*, 14: 496-509.
14. *Janet, Pierre.* Mental Pathology. *Psych. Rev.*, 12: 98-117.
15. *Kemp, H.* Overwork in Schools. *Am. Phys. Educa. Rev.*, 5: 114-116. (An Abstract.)
16. *Kratz, H. E.* How May Fatigue in the Schoolroom be Reduced to the Minimum. *Proc. N. E. A.*, 1899, pp. 1090-1096.
17. *Lee, F. S.* Nature of Fatigue. *Pop. Sci. Mo.*, 76: 182-195.
18. *Leuba, J. H.* On the Validity of the Greisbach Method of Determining Fatigue. *Psych. Rev.*, 6: 573-598.
19. *Lukens, H. T.* Mental Fatigue. *Am. Phys. Educa. Rev.*, 4: 19-29, 121-135.
20. *Lukens, H. T.* The School Fatigue Question in Germany. *Educa. Rev.*, 15: 246-254.
21. *McDougall, W.* The Condition of Fatigue in the Nervous System. *Brain* (1909), 32: 256-268.
22. *McMillan, Margaret.* Early Childhood, pp. 155-180.
23. *Monroe, W. S.* Fatigue Among School Children. *Proc. N. E. A.*, 1899, pp. 90-93.
24. *Mosso, Angelo.* Fatigue. Trans. by Margaret and W. B. Drummond, 1904.
25. *Offner, M.* Mental Fatigue. Eng. Trans. by G. M. Whipple.

26. *Ravenhill, Alice.* Some Results of an Investigation into the Hours of Sleep of School Children in the Elementary Schools of England. *Child Study*, 1:116-124, 1909.
27. *Rogers, Jas. F.* Physical and Moral Training. *Ped. Sem.*, 16:301-304.
28. *Sandiford, Peter.* Life of School Children—Fatigue, pp. 161-173.
29. *Seashore, C. E.* The Experimental Study of Mental Fatigue. *Psych. Bulletin*, March 15, 1894. 1:97-101.
30. *Tanner, Amy E.* The Child, pp. 35-46, 115, 396-397.
31. *Taylor, A. R.* The Study of the Child, pp. 199-202.
32. *Thorndike, Edward.* Mental Fatigue. *Sci.*, n. s., 9:712-713; *Psych. Rev.*, 7:466-482, 547-579.
33. *Warner, F.* The Study of Children, pp. 138-148.
34. *Wells, Fred L.* A Neglected Measure of Fatigue. *Am. Jour. of Psych.*, 19:345-358. Also Studies in Retardation as Given in the Fatigue Phenomena of the Tapping Test. *Am. Jour. of Psych.*, 20:38-59.
35. *Whipple, G. M.* Manual of Mental and Physical Tests. Vols. 1 and 2.
36. *Williams, Alida S.* The Investigation of Fatigue from the Teacher's Point of View. *Jour. of Ped.*, 17:199-213.
37. *Wimms, J. H.* The Relative Effects of Fatigue and Practice Produced by Different Kinds of Mental Work. *British Jour. of Psych.*, 2:153-195.
38. *Winch, W. H.* Some Measurements of Mental Fatigue in Adolescent Pupils in Evening Schools. *Jour. of Educa. Psych.*, 1:13-23, 83-100.
39. *Wright, Wm. R.* Some Effects of Incentives on Work and Fatigue. *Psych. Rev.*, 13:23-34.
40. *Yoakum, C. S.* An Experimental Study of Fatigue. *Psycho. Monographs*, No. 46, Baltimore, 1909.

CHAPTER XXXII

MORAL AND RELIGIOUS TRAINING

Thots for Consideration. 1. What is included under the term morality? Why the moral education of the young is so important. The effect of intellectual growth on morality. The relation of feelings to moral training. The contagion of feeling as a factor in education. The function of the will in moral training. The meaning and place of religion in complete living. Discipline and school punishment in their effect on morality. Is there a common unit by which we may measure the moral acts of children?

2. **Character.** Its true meaning and proper place in a system of education. Is character static or dynamic? Is the character of the people becoming less trustworthy? Are we inbreeding deception and dishonesty thru our ideals of education, social, religious, and political life? Do we **really** believe that "Honesty is the best policy?" As citizens of a republic, are we willing to practice, absolutely, that belief with our children and neighbors? Is belief in **war** and **rule by might** wholly incompatible with Christianity and a true democracy? Do fraternal organizations tend to advance honesty and the rule of right or dishonesty and the rule of might? Can a nation prosper that accepts as its standard in dealing with men, reason, justice, honesty, worth, sympathy, kindness? Can parents and teachers instill honesty and uprightness of character in children without themselves living true to such ideals? What changes should be made in our

teaching and social life to harmonize them with the highest moral efficiency? The character of any society depends upon the individual character of the members of which it is composed. "As the twig is bent the tree is inclined."

3. **Suggestions for Consideration.** The individual, tho a complex of body and mind, must act as a unit. True character depends upon the proper development of body and mind (soul); the latter covering feeling, knowing (appreciating), willing (serving). An oft repeated act becomes a habit; habits determine character. Every lesson, every play, every movement, every thot is influencing character. The moulding of character takes place more rapidly under the conditions of health and interest.

4. **Requisites of an Ideal Character.** Good Health and a well developed body, abundance of life and energy, keen sensibilities and a hopeful disposition, a sound, well cultivated mind, pure motives, a strong, consecrated will, and complete mastery of self; add to this sympathy and love for others and the list is nearly complete.

REFERENCES

1. *Adler, F.* Moral Instruction of Children.
2. *Allen, Wm. J. G.* Child Study and Religious Education. Child Study Mo., 2: 289-293.
3. *Bagley, Wm. C.* The Pedagogy of Morality of Religion as Related to the Periods of Development. Religious Educa., 2: 253-257.
4. *Bain, A.* Education as Science, pp. 398-424.
5. *Balmforth, R.* The Moral Development of the Native Races in South Africa. International Jour. of Ethics, 18: 137-151.
6. *Barnes, Earl.* Theological Life of a California Child. Ped. Sem., 2: 442-448.

7. *Barrows, W.* The Teaching of Morals in the Public Schools. New Eng., 43: 840.
8. *Bisbie, M. D.* Moral Instruction in the Public Schools. Educa., 2: 253-257.
9. *Bouton, Eugene.* Moral Training in Schools. Educa., 8: 411-421.
10. *Brereton, Claudesley.* The True Inwardness of Moral Instruction in France. Jour. of Educa., London, n. s., 30: 111-113.
11. *Brooks, C.* Moral Education. Am. Jour. Educa., 1: 336-344.
12. *Brown, Miss R. M. H.* Moral Education. Jour. of Educa., London, 31: 116-117.
13. *Coe, Geo. A.* Moral and Religious Education from the Psychological Point of View. Religious Educa., 3: 165-179.
14. *Collins, Jos. V.* Religious Education and the Sunday School. Educa. Rev., 37: 271-283.
15. *Compayre, G.* Psychology Applied to Education, pp. 148-202.
16. *Compayre, G.* Development of the Child in Later Infancy, pp. 153-259.
17. *Daniels, Arthur H.* The New Life. A Study of Regeneration. Am. Jour. of Psych., 6: 61-106.
18. *Dawson, Geo. E.* The Child and His Religion.
19. *De Garmo, Chas.* Kind and Amount of Moral Instruction to be Given in Public Schools. Religious Educa., 3: 125-128.
20. *Dewey, John.* The Chaos in Moral Training. Pop. Sci. Mo., 45: 433.
21. *Dewey, John.* Moral Principles in Education.
22. *Drummond, W. B.* The Child: His Nature and Nurture, pp. 119-130.
23. *Drummond, W. B.* An Introduction to Child Study, pp. 281-316.
24. *Dunton, L.* Moral Training in the Schools. Educa., 11: 394-400, 466-473, 526-534; 12: 65-73.
25. *Dunton, L.* School Discipline. Educa., 12: 323-330, 399-426.

26. *Ellis, A. Caswell.* Sunday School Work and Bible Study in the Light of Modern Pedagogy. Ped. Sem., 3: 363-412.
27. *Faunce, W. H. P.* Moral Education in Public Schools. Educa. Rev., 25: 225-340.
28. *Fere, M. Ch.* Morbid Heredity.
29. *Galpin, F. T.* The Normal Religion of a Boy. Relig. Educa., 271-276.
30. *Glade, Violet.* Moral Education and the Teacher. Jour. of Educa., London, 30: 781-782, 1908.
31. *Goodwin, Edw. J.* Exclusion of Religious Instruction from the Public Schools. Educa. Rev., 35: 129-138.
32. *Gray, H. S.* The Boy and the Cigarette Habit. Educa., 29: 294-315.
33. *Guyer, Michael F.* Being Well Born, pp. 195-227, 263-288.
34. *Hailman, W. N.* What Moral Results Should Common School Training Give? Educa., 4: 415-420.
35. *Hall, G. Stanley.* Moral Education and Will Training. Ped. Sem., 2: 72-89.
36. *Hall, G. Stanley.* The Moral and Religious Training of Children and Adolescents. Ped. Sem., 1: 196.
37. *Hall, G. Stanley.* Children's Lies. Am. Jour. Psych., 3: 59-70.
38. *Hall, G. Stanley.* The Relation of the Church to Education. Ped. Sem., 15: 186-196.
39. *Halleck, R. P.* Psychology and Psychic Culture, pp. 299-360.
40. *Harrison, Elizabeth.* The Religious Training of Children. Relig. Educa., 4: 256-260.
41. *Higgs, Mary.* The Moral Development of the Child. Child Life, 10: 203-206, 230-235, 1908; 11: 6-11, 39-43, 71-74, 1909.
42. *Hinsdale, B. A.* The Dogma of Formal Discipline. Dogma of Form. Educa. Rev., 8: 128-142.
43. *Jackson, E. P.* Moral Educability. Pop. Sci. Mo., 40: 647-649.
44. *Johnson, O.* Morality in the Public Schools. Atlan., 51: 748.
45. *Jordon, D. S.* Nature Study and Moral Culture. Science n. s., 4: 149-156.

46. *King, Irving.* The Psychology of Child Development, pp. 132-153.
47. *Kirkpatrick, E. A.* Fundamentals of Child Study, pp. 181-200.
48. *Leuba, Jas. H.* A Study in the Psychology of Religious Phenomena. *Am. Jour. Psych.*, 7: 309-385.
49. *Lewis, Henry K.* The Child; Its Spiritual Nature.
50. *Luckey, G. W. A.* The Development of Moral Character. *Proc. N. E. A.*, 1899, pp. 127-136.
51. *McMillan, Margaret.* Early Childhood, pp. 64-97.
52. *Oppenheim, N.* The Development of the Child, pp. 122-147.
53. *Oppenheim, N.* Why Children Lie. *Pop. Sci. Mo.*, 47: 382-387.
54. *Osborn, F. W.* Ethical Content of Children's Minds. *Educa. Rev.*, 8: 143-146.
55. *Palmer, G. H.* Moral Culture. Can Moral Conduct Be Taught in Schools? *Forum*, 14: 673-685.
56. *Parker, Francis.* Talks on Pedagogics, pp. 337-378.
57. *Patton, F. L.* Moral Instruction in the Public Schools. *No. Am. Rev.*, 137: 99-117.
58. *Peaslee, John B.* Moral and Literary Training in the Public Schools. *Educa.*, 2: 150.
59. *Perez, B.* First Three Years of Childhood, pp. 231-233, 285-292.
60. *Price, L. V.* Moral Education, 16: 1-7.
61. *Prince, J. T.* Moral Training and School Government. *Educa.*, 5: 113-126.
62. *Roark, R. N.* Psychology of Education, pp. 148-154, 219-228.
63. *Rogers, Jas. F.* Physical and Moral Training. *Ped. Sem.*, 16: 301-304.
64. *Russell, Wm.* Moral Education. *Am. Jour. Ed.*, 9: 19-48.
65. *Schoff, Mrs. Hannah K.* The Wayward Child.
66. *Sisson, Edw. O.* The Essentials of Character. Contains Bibliography.
67. *Soares, Theo. G.* Religious Training for the High School Age. *Relig. Educa.*, 4: 451-457.
68. *Starbuck, Edwin D.* The Child Mind, and Child Religion *Biblical World*, 31: 101-112, 1908; 33: 8-22, 1909.

69. *Starbuck, Edwin D.* A Study of Conversion. *Am. Jour. of Psych.*, 8: 268-308.
70. *Starbuck, Edwin D.* Some Aspects of Religious Growth. *Am. Jour. of Psych.*, 9: 70-124.
71. *Stoner, Mrs. Winifred S.* Natural Education, pp. 218-244.
72. *Street, J. R.* A Study in Moral Education. *Ped. Sem.*, 5: 5-40.
73. *Sully, Jas.* Development of the Moral Faculty. *Pop. Sci. Mo.*, 29: 29-33.
74. *Sully, Jas.* Studies in Childhood, pp. 228-297.
75. *Swain, Jos.* Religious Education in the Public Schools. *Religious Education*, 4: 348-352.
76. *Tanner, Amy E.* The Child, pp. 173-211.
77. *Taylor, A. R.* The Study of the Child, pp. 153-158, 168-178.
78. *Thurber, Chas. H.* The Relation of Child Study to Sunday School Work. *Northw. Mo.*, 8: 137-141.
79. *Tracy, F.* The Psychology of Childhood, pp. 179-192.
80. *Woods, F. A.* City Boys Versus Country Boys. *Science n. s.*, 29: 577-579.

CHAPTER XXXIII*

THE MUSIC SENSE OF CHILDREN AND ITS CULTIVATION

Music is preëminently the language of the soul—and an expression of the emotions. In its best and most exalted state, it elevates man's soul to an ideal state of being. This is particularly true of the one who creates art.

The instinct of the child, as early as he can make the climb, is to get up and drum on the keys of the piano. This tendency is strongly marked even in the crawling stage, where it is necessary to cling with one hand to the bench, while playing with the other. Smaller children generally need to be shut out of the parlor while the practice is being done. Frequently, a child of three or four years of age will sit very quietly during the entire lesson period of the older brother or sister.

Preyer's child was quieted by music at the age of six weeks. Preyer also observed rhythm at the age of eighteen months.

If the observing student will attend any afternoon

*At the suggestion of the author of the *Essentials of Child Study*, chapter XXXIII on *The Music Sense of Children and Its Cultivation* was added by Miss Rose Yont, Ph. D., author of *"The Status and Value of Music in Education."* America has not kept pace with Europe in the cultivation and appreciation of music, and less attention has been given to the subject in public education. The fault is not in the subject nor in the people but in the unpedagogical teaching. There is at present a growing interest in public school music that promises better things. Music is so vital in the civilization of a people that it seemed appropriate to add a chapter on the subject to the *Essentials of Child Study*. No one seemed more fitting, in interest, scholarship, and teaching experience, to prepare such a chapter than Dr. Rose Yont.

band concert in an open park where children are present in large numbers, he will notice many instances of the beating of rhythm by very small children.

The mother's lullaby soothes the child when all else fails. The tinkle of the rattle causes every muscle to become tense with lively interest. The distant notes of the band draw the small boy with a peculiar mesmeric power.

Music is the universal language which needs no translation and which makes the same appeal to all races.

G. Stanley Hall says music, in its broadest sense, is the most liberal, most humanistic of all studies, not even excepting literature. It is the language of the emotions, and these constitute three-fourths of life. It is the best and truest of all expressions, especially if with singing we consider gesture, mimesis and dramatic action, which arose with it. Music is the expression of this antique, half buried racial soul. Music compels every mood in the gamut of human experience, and gives a sense of exhilarating freedom, as if we lived in a world where nothing is impossible.

Shopenhauer says music is the last word of the highest philosophy.

German aestheticians say music expresses all the cosmic emotions.

Tolstoy says art is an activity arising even in the animal kingdom, and springs from sex life and the propensity to play. It is accompanied by a pleasurable excitement of the nervous system. The lower animals expend all energy in life and race maintenance. In man, a surplus is left. This is used in play, which passes over into forms of art.

The source of real art is the artist's need to express

an inner accumulated emotion or feeling. To produce real art, a man must stand on the highest life conception of his time, must experience the feeling, must have the power to transmit and a deep love for his art.

It is impossible to teach art. It is only possible to furnish the environment. If appropriate, an emotional combustion takes place, the soul yields itself to this higher life, and art begins. Thus the individual reserves all right to absorb or reject the material at hand.

No other art is changing so fast, or showing such bold, new departures, or making more progress in getting close to life than is music. Nor in any other art does the teaching lag so far behind what it should and could do for the development of the individual. Young children do not feel it, as a rule. School music should palpitate with emotional life. Even psychologists are realizing that feelings are vaster than the intellect or will, and are more important for the sake of health and sanity.

Miss Hofer (N. E. A., 1900, pp. 397-402) says self-activity, spontaneity, self-expression and the play spirit must be the watch word in music. The native impulses must be respected.

E. L. Morton (The Selection of School Songs, "Elementary School Teacher," 1904, 5:148-158) says music must conform to the actual present interests of the child, and to the potential adult. The best songs are those in which the most are interested, and whose effects last longest. Early songs should be simple, with a bright tempo, and closely related to life.

It is hard for children to feel music without movement, so dancing is necessary at some stage of the

music education; and by this we also draw out the immense reservoir of motor tendency.

The story should precede the song, and all should be set in imagination, romance and poetry. The child should never play or sing what he does not feel, or cannot experience. The first accessory to a musical education should be mythology, especially of the cycles that have made so many of the great musical dramas. Wagner only suggested the possibilities along this line.

G. Stanley Hall says: "Break the iron law which puts Tonic Sol Ta in the kindergarten, staff, scale and intervals in the grades, and harmony, counterpoint, orchestration and instrumentation in the University ahead of a wide acquaintance and appreciation of masterpieces. Too much technic and too little early familiarity with music is the letter that kills."

The earliest instrumental lessons show a love for bright, melodious pieces, with distinct rhythm, and strong desire for words to the music, in the years from four or five to six or eight.

The average instrumental teacher concentrates upon note reading and a corresponding finger precision. This leaves the child to master the following principles simultaneously: Two clefs to read, a corresponding placement upon some instrument, varying rhythms, usually audible counting, correct hand position, loose arm muscles, and, if piano, the pedal must be attended to. Hall says the child who dislikes the typical music lesson is to be admired and respected.

Instinctively the child feels right or wrong conditions and will respond with interest, enthusiasm and rapid advance, if the approach is truly pedagogical.

For all practical purposes, all people may be said to

be musical if normal. However, the best talent may be deflected by wrong pedagogy.

Give a child a short, bright phrase that can be played in rapid sequences, and he will execute it with muscular freedom, with ease, and, in four or five weeks, will reach a high degree of finger velocity, with great fascination for this dexterity. Give the identical sequence on the printed page, unknown to the child, and he will read painfully, at a snail's pace, with cramped muscular conditions. Follow the latter method up with endless books of mechanical exercises, and a muscular condition is reached which is hard to uproot. The advanced symptoms are inability to perform technically, but with good mental concept, accompanied by muscular fatigue, sometimes rheumatic conditions. Such a state is generally recognized by the instructor, but with no ability to offer a solution. The last resort is parental abuse to enforce practice.

The same application in the school song period leads to cramped throat muscles, sharp voices and bad voice placement. The child's voice is naturally placed in the normal condition, and needs only to be preserved in the natural state.

Notation, which is hard at any stage, came late in the development of the race, and hence should not be prematurely presented. When the learning process is reduced to a minimum, even the young child of four or five years can reckon by position if he once for all gets a starting point firmly located. If music is a language, why teach the notes at all, if we no longer learn the alphabet? Notation need not enter in to the process of musical education.

SUGGESTIONS FOR PRACTICE

In teaching the child, let him become the composer at once. For example, start on middle C for a beginning, and go up one octave to the next C above, where the voice naturally falls at rest on the key note. Since it is a rising scale, take "kite" for a subject, and use these words: "Up went my kite into the air." We have a song. Now reverse the scale and descend from the high C. Since leaves fall let us change the words to: "All the brown leaves came tumbling down." Any child will do this readily, and we have at once the full fledged emotional life, with a strong impetus toward creative instinct and initiative. Many short phrases, such as "Sing, birdie, sing," "spring has come," come readily to the child's mind. Without rules of harmony, the free and easy composition is natural and easily acquired. This in turn suggests instrumental performance as a means of more expression. By careful direction, the child can soon work out his own orchestration, and score his own parts. In this way, school music can easily become the original product of the school children.

Musical games, musical contests, and musical themes, all furnish great inspiration, while the various mechanical players afford abundant opportunity to exhaust the realm of musical classics, even to grand opera and symphony.

Beautiful song has been conceived by artistic souls who knew not a single note, but had felt the divine spark of genius. On the other hand, the modern composition has evolved from the student fully equipped with a course of harmony, counterpoint and orchestration. Thus we have the two extremes today. As a

result, the soul turns with an unsatisfied longing, back to the simple beauty and dignity of the old folk song, the singular expression of the common people, living the life of homely duty.

One is the music of the intellect; the other is a creation of the emotions, and as such has a place deeply entrenched in the hearts of all.

The transition period is at hand when music is struggling for its very existence. Its need is felt as never before, and the adjustment is very rapid, very irrational at times, and very unstable at present.

The future music, if it is to be a national expression, will not be the exclusive feelings or an expression of human satiety, interesting only to those of like personality, but the development of emotions common to all mankind. Art is not a pleasure; it is a great matter, an organic part of human life, transmitting man's reasonable perceptions with higher values and ideals.

The future music must express sound feeling which can only be engendered when man is living on all sides the life natural and proper to his kind. No position is more injurious to artistic expression than an existence of security and luxury. The latter type leads a life of consumption and of destruction, the former one of active and real productivity.

QUESTIONS

Of what value is music in educational lines? Is its value unique, and if so, in what way? Why is it of more value at the present time than it has been in the past?

If our present methods of teaching music are non-pedagogical, what is the difficulty and how might they be improved?

Music is sometimes spoken of as the triple art or of threefold value. Can you see why this is so?

If you had the responsibility of directing a child's musical training, how would you set about it?

What seems to be the essential points in music teaching?

What modern tendency in life shows the lack of musical training?

Do you see any reason why a musical training should unfit a man for business life. If so, explain.

What is the tendency of exclusive musical training? Of exclusive scholastic study.

What is the serious danger of music study outside of school as at present? Do you see a remedy?

REFERENCES

Educational

1. *Hall, G. Stanley. Educational Problems, Chapter 3—The Pedagogy of Music—pp. 91-135.
2. *Hall, G. Stanley. Adolescence. See index, Vol. 2.

Psychological

3. *Bartholomew, Edward F. Relation of Psychology to Music. Introduction and Chaps., 1-8.
4. *Davies, Henry. Art in Education and Life. Chaps. 1, 2, 3, 4, 6, 7.
5. *Hirn. The Origin of Art. Chaps. 2, 3, 5, 6, 7, 8, 10, 11, 12, 14, 17, 18, 20.
6. *Stumpf, Carl. The Psychology of Tone—The Degrees of Tonal Fusion from the Classical Psychologists.
7. *Tolstoy, Leo. What is Art? From the Russian.
8. Wundt, Wilhelm. Outlines of Psychology—Complete Feeling, p. 175.

Musical

9. **Britan, Halbert Haines*. The Philosophy of Music. Chaps. 1, 4, 5, 8, 9.
10. **Giddings, T. P.* School Music Teaching.
11. **Tombard, Louis*. The Art Melodious. Chaps. 1, 2, 34, 36.

Periodicals

1. American Journal of Psychology.
 - a. "Muscle Sense in Singing".....1887—88: 205
 - b. "Morbid Psychology—Musical Expression"1888-89: 175, 347
 - c. "Report of Experimental Test of Musical Expressiveness"1891 : 558
 - d. "Primitive Music"1893-95: 459
 - e. "Music and Psycho—Physiology".....1895-96: 440
 - f. "A Musical Experiment".....1897-98: 63
 - g. "Distraction of Musical Sounds; Effects of Pitch upon Attention".....1897-98: 332
 - h. "Contribution to a Psychological Theory of Music"1900-01: 609
 - i. "Experimental Studies in the Psychology of Music"1903 : 192
2. Journal of Educational Psychology, June, 1910.
"Training the Voice by the Aid of the Eye in Singing."
3. Psychological Monograph, July 2, 1914.
"The Tonoscope" (C. E. Seashore, Uni. of Iowa).
4. Psychological Review, Vol. 5.....1898 : 463
"Music Imagery" (Dr. Robert Macdougall, Western Reserve Uni.).
"Elements of Psychology, Theory of Melody".....1900 : 241
5. Music Teachers' National Association.
 - a. "Music in College and Secondary Schools".1906 : 70
 - b. "Music Credits in Secondary Schools".....1906 : 76
 - c. "The Movement for the Advancement of Music in Secondary Schools".....1907 : 69
 - d. "The Aims of Courses in Grammar Schools".1907 : 118
 - f. "Exigencies and Possibilities of Secondary Music Education"1908 : 148

g. "Report of Committee on Public Schools".....1908	: 165
h. "Chorus Work in High School".....1908	: 179
i. "Social Music in Indianapolis".....1908	: 186
j. "A High School Music Course".....1908	: 187
k. "A Conclusion Drawn from Inquiry Into the Status of Music Education in Secondary Schools, Colleges and Universities".....1908	: 191
l. "The Emphasis in Instruction".....1909	: 126
m. "Report of Public School Conference".....1909	: 141
n. "The Musicianship of the Grade Teacher".....1909	: 144
o. "The High School Curriculum".....1909	: 151
p. "Music in the Home and Its Bearing Upon the Training of the Grade Teacher".....1910	: 157
q. "The Grade Teacher's Relation to Music in the Public Schools".....1910	: 164
r. "State Certification of Teachers".....1910	: 174
s. "The Reconciliation of Art and Science in Vocal Teaching".....1911	: 181
t. "Specific Musical Education in the Grades".....1911	: 204
u. "High School Music".....1911	: 211
v. "Report Concerning Present Status of Music in High Schools of New England, New York and New Jersey".....1911	: 217
w. "Music in Cincinnati".....1913-	: 7
x. "Municipal Music in New York City".....1913-	: 16
y. "Music as a Factor in Social Uplift".....1913	: 25
z. "The Need of Correlation Between the Pri- vate and the Public School Music Teacher".....1913	: 154
A. "The Language Method in Teaching Appre- ciation".....1913	: 161
B. "An Unsuspected Popular Instinct for Mu- sical Education".....1913	: 179
C. "The Standardization of Music Teaching".....1913	: 219
6. National Educational Association.	
a. "Music in the High School".....1908	: 844
b. "Music in the Schools from the Standpoint of the Superintendent".....1908	: 840
c. "Music on an Accredited Basis".....1909	: 696
d. "Modern Psychology and Music Study".....1909	: 687

- e. "Boston the Cradle of Public School Music in America"1910 : 798
- f. "The Automatic Players in Schools".....1910 : 808
- g. "High School Orchestras".....1910 : 815
- h. "Some of the Defects of Music Instruction in the Schools".....1910 : 822
- i. "Public School Music in Relation to Music of the Community".....1911 : 790
- j. "The Opportunity and the Responsibility of Normal Schools in Public School Music".1911 : 822
- k. "A Presentation of the High School Course Adopted by the Music Supervisors' National Conference"1912 : 1004
7. Pedagogical Seminary, Vol. 15.
"The Psychology of Music and the Light It Throws on Musical Education".....1903 : 358
8. Education, Vol. 28, June, 1908.
"The Worth of Music in Education".....1908 : 646
9. Outlook.
"Music in New York City".....Vol. 88—1908 : 63
"Music and East Side Children"....Vol. 88—1908 : 427
"The Music Layman".....Vol. 90—1908 : 494
"Music and City Children".....Vol. 97—1911 : 483
"Music School Settlement".....Vol. 98—1911 : 233
"The Wisconsin Idea of Music".....Vol. 105—1913 : 509
10. World Today.
"Pop-Concerts in Chicago".....Vol. 18—1910 : 360

Doctors' Theses

11. "Variation in Pitch Discrimination with the Tonal Range." University of Iowa. *T. F. Vance.*
12. "The Effect of Training in Pitch Discrimination." *F. O. Smith.*
13. "Accuracy of the Voice in Simple Pitch Singing." University of Nebraska. *W. R. Miles.*
14. "Status and Value of Music in Education." *Rose Yont.*
"Music in the Public Schools." Part 1, pp. 5-73.
"Private Music Study in Lincoln Schools, and in Nebraska," pp. 245-266.
"System of Incorporating Music Study in the Public Schools," pp. 299-315.

INDEX

	Page
Aesthetic Feelings	109
Arising from music.....	112
Affection	112, 118-122
Affection between individuals of opposite sexes..	116
Age differences	120
Age of first attachment.....	118
Effect on individual	118
Effect on studies	119
Effect on conduct.....	119
Effect on other friendships.....	119
Overt acts or tokens of.....	122
Qualities that attracted.....	121
Study of affection.....	118
Anger	99-108
Accompanying feelings	105
Accompanying symptoms	103
After feelings	106
Best treatment of.....	106
Early indications of.....	100
Effect of control on.....	105
Frequency of outbursts.....	106
Loss of self control.....	104
Length of outbursts.....	105
Modification of senses.....	103
Motor impulses and actions under.....	104
Questions for gathering data on.....	102
Summary of study made of.....	103
Association: Early signs of	125

	Page
Breathing at Birth	26
Bibliography, General References	7-11
Brain Growth	36
Child at Birth	26-29
Brain	26, 36
Care of	26
Height	30
Mental condition	26
Nervous system	26, 36
Organic sensation	75
Physical condition	26, 30
Reflex functions	26
Weight	30
Child Study	15-25, 185-190
Beginning of	15
Different authorities on.....	15
Importance and value of.....	21
Methods of	185-190
Individual	186
Laboratory	187
Observational	185
Questionnaire	185
Nature of	15
Scope of	15
Children's Interests	179-184
Books and stories.....	180
Change of	179
Racial interests	179
Studies made on.....	180
Color Discrimination	49-53
Color blindness	49
Early perception of color.....	49
Observations on	50
Conceptions, the Child's	145
Crying	155
In the new born.....	155
Outline for study of.....	176

	Page
Curiosity	97
Indications of	98
Influence in the child's development.....	98
Drawings of Children	165-169
Method for study of.....	167
Three stages of.....	166
Emotions	75-123
Eye	41-57
Accommodation of pupil.....	41
Adjustment to light.....	41
Fixation of	45
Movement of	41, 46
Sensitiveness to light.....	41, 42
Fatigue	191-195
Laws of, in relation to schoolroom.....	192
Methods of testing.....	192
Fears	76-95
Age when most prominent.....	94
After effects	93
Aids in dispelling.....	93
Conditions accentuating	93
Effect of	77
Evaluation of childish fears.....	77
Animals	80, 89
Dark	83, 89
Falling	83, 90
Natural phenomena	90
Other objects	91
Unusual sounds	78
Influence of a neurotic person.....	77
Plans for study of.....	61-62, 78-87
Persisting fears	93
Quotations showing sources of fear in children..	78
Racial fears	77
Results of an introspective study of.....	87
Symptoms of	92

	Page
Feeling	75-123
Aesthetic	109, 110-114
Affection	109, 112
Anger	99-108
Curiosity	97
Emotion	75
Fear	76-95
Jealousy	115-117
Pleasure	110-114
Sex feeling	116-122
Surprise	96
Sympathy	110, 114
Growth of the Child	30-35
Average	30
Dependent on race	31
Dependent on class	31
Dependent on localities	31
Difference between boys and girls	30
Periods of	31
Hearing	58-63
Beginning of localization	60
Defects in	61
Sensitiveness to sound	58
Ideas of Self	149
Beginnings of	149
Use of pronouns	150
Imagination	137-141
Constructive	138
Importance of	137
Passive	137
Records on	139-141
Uncreative	137
Imitation	135, 157-160
Record of	157-160
Intelligence	124
Beginning of	126
Intelligent association	127
Jealousy, Indications of	115
Judgment	145

	Page
Knowing	124-151
Language	170-175
Acquisition of words.....	171
Babbling period	170
Beginning of gesture.....	171
Beginning of language.....	170
Beginning of sound imitation.....	170
First stage	170
Odd expressions	172
Sentence building	172
Laughing	176-178
Beginning of	176
Outline for study of.....	176
Value of	176
Memory	125, 129-137
Definition of	125
Earliest	131
Observations on children.....	129
Plan for study of.....	125
Results obtained from introspection.....	131-137
Milk: Human as compared to cow's	27
Moral Training	196-200
Character building	196
Requisites of character.....	196
Value of habit in.....	196
Movement	152-157
Deliberate	156
Expressive	155
Facial	152
Ideational	154
Impulsive	152
Imitative	155
Instinctive	153
Learning to walk.....	154
Mouth movement	154
Reflex	153
Seizing	153
Music Sense of Children and its Cultivation	202-212

	Page
Nervous System	36-40
At birth	36
Development	36
Effect of work on	37
Growth of	36
Office of	37
Periods of growth of	37
Organic Sensations	75
At birth	75
Development of	75
Perception	45, 124
Beginning of conscious	45
Process of	124
Perspective	47
Development of	47
Physical Child	30-35
Pleasure	109
Earliest indications of	110
Reasoning	145-148
Types of child reasoning	146
Reflex Functions: At birth	26, 153
Religious Training. (See Moral Training.)	
Sensation	41-74
Beginning of	41
Hearing	58-63
Sight	41-57
Smell	70, 72
Taste	69, 71
Touch	64-68
Sex Feeling. (See Affection.)	
Sight	41-57
Beginnings of	41
Color	49-51
Defective vision	54
Observations showing early sensitiveness to light	42
Sleep	26, 193
Amount necessary in infancy	26
Amount necessary to overcome fatigue	193

	Page
Smell	70, 72
Beginnings of	70
Observation of	72
Surprise	96
Observations showing beginnings of.....	96
Relationship to astonishment.....	96
Relationship to fear.....	96
Sympathy	110, 114
Beginnings of	110
Indications of	114
Taste	69, 71
Development of	69
Observations of	71
Response to	69
Touch	64-68
Associating visual and tactile sensation.....	67
Localization	64
Observations on	65
Reaction time	65
Use in development.....	64
Vision. (See Sight.)	
Weight of Child	30
At birth	30
Normal	30
Will	152-164
Development of	152
Connection between movement and will.....	152
Early indications of.....	160







